DOCUMENT RESUME

ED 288 856	SP 029 637
AUTHOR	Mitchell, Edward H.
TITLE	A Plan for Educational Excellence for the 21st Century. Unabridged Edition 1987.
INSTITUTION	Anne Arundel County Public Schools, Annapolis, Md.
PUB DATE	Jul 87
NOTE	335p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC14 Plus Postage.
DESCRIPTORS	*Educational Objectives; Elementary Secondary Education; *Futures (of Society); *Long Range Planning; *Program Development; Public Schools
IDENTIFIERS	*Anne Arundel County Public Schools MD

ABSTRACT

This document offers a comprehensive study of the present status and future needs of the public schools in Anne Arundel County, Maryland. Chapter I defines educational planning and concepts of and guidelines for such planning. The processes used in developing educational plans and the organization of the document are also described. In Chapter II a synoposis is given of the legal, political, economic, and social characteristics of Anne Arundel County. Chapter III presents a detailed report on each program (subject) area offered in the schools. Each report includes the present status of the program, findings from a review of relevant literature, recommendations, steps necessary to implement the recommendations, and projected outcomes. Some of the program areas are subdivided into specific areas for consideration. Chapter IV poses 11 basic questions on the function and responsibilities of the public schools. Chapter V provides some conclusions and comments. (JD)

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Anne Arundel County Public Schools

A Plan for Educational Excellence for the 21st Century

UNABRIDGED EDITION
1987

Edward H. Mitchell, Ph.D.
Assistant Superintendent for Program Planning
Publication Number 1396/21

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PREFACE

Planning is a process used for reaching goals and objectives. The title of this publication, A Plan for Educational Excellence for the 21st Century, clearly indicates the goal of the plan. That goal is the continual pursuit of educational excellence so that the students who are enrolled in the public elementary and secondary schools of Anne Arundel County during the remainder of this century will be able to achieve excellence in their chosen paths of adulthood in the 21st century.

Educational excellence in this plan means that all students should be provided educational experiences that will maximize their potential as individuals and citizens living in an international society in the 21st century. The challenge facing educational planners is to determine the actions that should be taken to meet the future needs of students and society. It will require the continual modification of existing programs and the establishment of new programs.

It is desirable for this publication to have widespread review by the employees of the school system and the general public with opportunities for their input before action is taken on many of the recommendations contained in the plan. To assist in the review of this rather voluminous publication a condensed version of the plan is available. Also, an audiovisual presentation is available that will help to put the plan in proper perspective.

At all times, the critical role of education in the preservation of democracy must be kept in mind:

> Education makes people easy to lead, but difficult to drive,
> Easy to govern, but impossible to slave.

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ACKNOWLEDGMENTS

The completion of A Plan for Educational Excellence for the 21st Century required an enormous effort over an extended period of time. Many people made contributions in the development of the plan. Initially, thirty committees with a total of 250 members were formed to develop program reports. As their work progressed, other committees were formed and individuals were asked to provide contributions to the program reports. The contributions made by all of these people were critical in completing Part III of the plan. The fact that their names are too numerous to list here does not diminish the appreciation that is felt for their generous help and time committed to this project.

During the second phase of developing the plan, the tireless and sometimes tedious work done by Dr. Suzanne L. Edwards in editing, pursuing details, writing program reports for identified areas as the study evolved, and working with various staff members to ensure accuracy and consistency of the program reports was of great help in the development of Part III. Her efforts were sincerely appreciated.

The next phase of bringing the plan to fruition would not have been possible in this time frame without the skillful help of Mrs. Linda Poole. Mrs. Poole was primarily responsible for working on Part II of the plan, editing the entire plan and preparing accompanying materials. Expressed in a diplomatic manner, her command of the English language and interest in the content of the plan extended my knowledge of the language and sharpened my thinking about the critical issues addressed in this publication. It was a pleasure to work with Mrs. Poole on this project.

Of course, a project such as this can not be completed without excellent secretarial assistance. In this case that was provided by Mrs. Bertha Nist who patiently and pleasantly typed and retyped the many drafts of the plan. Other support was provided by Mr. Jim Goodwyn who graciously gave of his time to produce charts and graphs that enhance the ability to communicate the facts in the plan. Also, Mr. James Bradley and his staff were most helpful in publishing this document. Finally, for all the other people who assisted in developing and sharing the ideas that are contained throughout the plan, who assisted in the preparation of the plan in varying degrees, and whom I have failed to mention either directly or indirectly, a sincere THANK YOU is given.

Edward H. Mitchell, Ph.D.
Assistant Superintendent for Program Planning
July 1987

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CHAPTER I

INTRODUCTION

Chapter I is divided into three sections: educational planning, planning process, and organization of the plan. Beginning with a definition of educational planning, the first section discusses reasons for and assumptions about it as well as concepts of and guidelines for such planning. The second section highlights the process used in developing this plan. Finally Chapter I concludes by briefly outlining the organization of this publication.

Educational Planning

Educational planning is the process of identifying, collecting, and analyzing internal and external data about a school system to arrive at useful information for preparing and executing plans to help meet the school system's goals and objectives. Educational planning should be based on a consideration of the values, expectations and aspirations of the society served by the school system and the developmental characteristics, needs, interests, capabilities and aspirations of its students.

Educational planning is one of the basic interrelated functions of leadership along with controlling, organizing, motivating and evaluating. All of these functions must get attention and be kept in proper perspective. However, for the energies of a school system to be focused, explicit goals and objectives must exist and be accepted by the people responsible for leadership and implementation within the school system as well as by the people being served by the school system. One of the most important reasons to plan is to reach and implement mutually agreeable goals and objectives and to establish a process for revising them as the dynamic internal and external variables interact and change.

In planning, the following basic assumptions should be kept in mind:

- The future will differ from the past and from the present.
- The rate of change will be faster than ever before.
- It is very difficult to predict the future.

Even though predicting the future is a very risky endeavor, there are major advantages in planning for the future. Planning helps to raise the level of consciousness about future implications of present decisions, to select the most desirable and feasible alternatives from among the possibilities, and to make the chosen course of action more probable to occur. In other words, the future doesn't just happen. It is created by the actions or inactions of people today. The school system would be remiss if it did not undertake major efforts to position itself so that it can influence and adapt to societal changes in order to determine its destiny.

People often become disappointed with educational planning because they expect too much to be accomplished too soon. Planning will not solve all educational problems or eliminate all mistakes. However, it will minimize the degree to which educators will be caught by surprise and, hence, will help them to cope with changes. It is important to remember that educational planning calls for subjectivity as well as objectivity in analyzying trends and opportunities while simultaneously using creativity in determining the most effective use of resources.

Some of the key planning concepts are:

- There is a need for both short and long range planning.
- Planning must consider the effective and efficient use of human and nonhuman resources.
- Planning must try to determine what ought to be and what actions to take to ensure that it happens.
- Planning must continually focus on narrowing the gap between what is and what ought to be.
- Planning must include ongoing evaluation to determine the degree of success in attaining the goals and objectives.
- Planning must be viewed as a continuous process.

For educational planning to be effective it is imperative the following guidelines be adhered to:

- An adequate data base must be maintained.
- The process must be kept simple.
- Paperwork must be kept at a minimum.
- Provisions must exist for the process to be coordinated and integrated with all departments and functions of the system.
- Time for planning must be established that is free from other interruptions.

The first major effort to develop a comprehensive educational plan for the school system culminated in the publication of the Ten-Year Plan for Educational Excellence in 1980. This document has served the system well. Though some have been modified or discarded, many of the recommendations contained in that plan have been implemented. In any event, since things do not remain static and planning is a continuous process, it is time to replace this document with A Plan for Educational Excellence for the 21st Century.

Planning Process

The preparation of this plan has been a long, arduous process involving many people in the school system. It is important to involve as many people as possible who will have responsibility for the implementation of the recommendations. Such involvement usually results in greater commitment from the implementers. At the same time it is important to guard against parochialism, self-fulfilling prophecies and promulgation of the status quo for personal job security reasons. During the planning process there was a sensitivity to maintain a balance between these positions.

The planning process was initiated during the fall of 1985. The first step was to establish committees for each of the existing program areas in the school system. To solicit nominees the program coordinators were requested to submit the names of teachers, including central office resource teachers, who they thought were the most outstanding teachers and creative thinkers in their respective areas of responsibility. Simultaneously, all principals were requested to use the same criteria in nominating teachers and school-based administrators. Secondary principals were requested to submit the names of six classroom teachers and one assistant principal and/or administrative trainee. Elementary principals were requested to submit the names of two classroom teachers, one from the primary grades and one from the intermediate grades, and one assistant principal or administrative trainee (if available). All principals were encouraged to nominate themselves if they so desired. Similarly, nominees were solicited from the special schools and centers. Nominees were received who represented all schools and centers in the school system.

The next step was to establish committee memberships. This was done in a planning session with the assistant superintendent for program planning and each program coordinator. The committees were formed with sensitivity to race, sex, level of assignment and geographical location of assignment. The size of the program committees ranged from five to sixteen members. All schools and centers, with the exception of approximately one-third of the elementary schools, had at least one representative on some committee. The program coordinators chaired the committees. In this role, they were responsible for providing background information to the committee members, establishing meeting dates - two substitute days were allotted for each committee member, if needed - and submitting a report to the assistant superintendent for program planning by Spring 1986. The report was to include present status of the program, a review of the literature and research, recommendation(s) and accompanying rationale(s), what it would take to implement the recommendation(s), and the projected outcomes if the recommendation(s) were implemented. The chairpersons were requested to maintain a file to support the information contained in their respective reports. Also, the demographic slide/script presentation "Perspectives on Education: Anne Arundel County" was presented by the consultant hired to conduct the study as background information for the committee members.

During the 1985-86 school year, the other assistant superintendents and the director of fiscal services were requested to identify key issues that had implications for their respective departments and to submit and discuss them in a conference with the assistant superintendent for program planning. In these meetings, mechanisms were established for them to submit reports under the same conditions as described in the above paragraph for the program coordinators. Finally, as the study process evolved, some existing or projected program areas not previously identified which were not being addressed by the various groups became apparent. In such cases, individuals or small groups of staff members were requested to submit reports on these topics. During the preparatory stages of the initial submission of the reports, the assistant superintendent for program planning met with the individual chairpersons and/or full committees as requested by the chairpersons.

After the reports were submitted and reviewed, the assistant superintendent met with each chairperson to discuss and suggest additions, modifications and deletions as was considered appropriate. The chairpersons were then requested to revise the reports and resubmit them within a month following the conference. Beginning in the fall of 1986, the teacher specialist for program planning participated in these discussions and provided assistance to the chairpersons through individual consultation. Also, this person wrote some drafts for areas that were not addressed through the committee work.

Following the resubmission of the reports, the teacher specialist for program planning edited the reports under the direction of the assistant superintendent for program planning. After this editing process the reports were sent to the respective chairpersons for their final reactions. At this stage of the process the person holding the position of teacher specialist for program planning was promoted within the system. Subsequently, a high school English department chairperson worked on a part time basis for the remainder of the 1986-87 school year and during the summer of 1987 to complete the final editing of Chapter III and to assist in the writing and editing of the other parts of this publication.

Organization of the Plan

The Plan is organized into five chapters. Chapter I, Introduction, provides a discussion of educational planning and of the process used in developing the plan, then concludes with this section which describes how the plan is organized. Chapter II provides background about the legal, political, economic, and social factors that affect the public school system. By providing some of the key demographic data, the environmental context in which the public school system operates is highlighted.

Chapter III, Program Areas, is the longest section of the plan. In this chapter, each of the existing program areas and proposed program areas for the school system are presented. Some of the program areas are subdivided into specific areas for consideration. Each program area and area of consideration has the following subheadings: present status, research, recommendation, and outcomes. The program areas are presented in alphabetical order. Hence, they do not appear in priority order. Each must stand on its own merit.

Chapter IV, Fundamental Issues, poses eleven basic questions and provides a response to each question. The last section of the plan, Chapter V, provides some concluding comments.

CHAPTER II

LEGAL, POLITICAL, ECONOMIC AND SOCIAL CONTEXT : A SYNOPSIS

Anne Arundel County located on the Chesapeake Bay between Baltimore and Washington is often called Maryland's centerpiece. From the urban areas in the north to the rolling tobacco fields and horse farms in the south, Anne Arundel's 418 square miles encompass a prosperous, growing, and diverse county.

Between 1970 and 1980, Anne Arundel's population grew by 24%, far exceeding national and state averages. Of the current 414,074 county residents, 85% are white, 13% are black, and 2% are other minorities. Males outnumber females by 2%. Though the number of older citizens is increasing, nearly half of the county's population is between 20 and 44 years old.

Anne Arundel is a commercially attractive county. This is facilitated by access to the port of Baltimore, extensive highway networks, major rail transport, and Baltimore-Washington International Airport. With more than 12,000 acres of industrial land, Anne Arundel County includes many types of manufacturing, several regional distribution centers, and a foreign trade zone. Recently, there has been considerable growth in jobs in research and development and in technological areas. Over $3 billion in government contracts goes to county firms annually, many of these contracts to Westinghouse, the county's largest employer. The National Security Agency, Fort George G. Meade, and the United States Naval Academy are also located in Anne Arundel County. In total, 38% of county workers are employed by some branch of government. In 1987, the unemployment rate had declined to 3.2%.

Rapid commercial and industrial growth has given Anne Arundel County a strong economy. In 1986, the per capita income was $13,205. Anne Arundel County residents exceed both the national and state income levels and the gap continues to widen. The average selling value of houses in 1987 is $108,000. Most residents own and live in single family detached houses. However, there is a wide range of income levels among county residents and wide variety among the many communities in the area.

Several other factors contribute to the attraction of Anne Arundel County as a place to live and work. Most notable are the boating and water activities available on the Chesapeake Bay and the more than 400 miles of tidal shoreline within the county. There are also two state parks and 79 county parks. In addition to water sports, county residents have access to a wide variety of sports events throughout the year. Anne Arundel County is proud of the heritage seen in its many historic buildings, landmarks, and museums. Annapolis, the county seat and state capital, is not only popular with residents, but attracts large numbers of tourists annually.

Anne Arundel County is also active culturally. Residents and visitors may attend symphonies, opera, or theatre; may select books from the public library system, 43th largest in the nation; or participate in frequent national, state, and local celebrations such as the U.S. Sailboat and Powerboat Shows, the Maryland Renaissance Festival, Chesapeake Appreciation Days, and the Annapolis Fine Arts Festival.

The education level in the county is high. Over 70% of the adults are high school graduates, 20% have college degrees. The U.S. Naval Academy, St. John's College, and Anne Arundel Community College which has approximately 9000 students enrolled in credit classes are all located in the county. There are more than 60 other accredited institutions of higher education within commuting distance.

Anne Arundel County has a charter form of government with a county executive and a seven member county council all elected for coinciding four-year terms. As in all Maryland counties, the boundaries of the public school system are coterminous with those of the county itself.

Of the approximately 16,000 school districts in the nation, Anne Arundel County Public Schools with a 1986 enrollment of 63,926 is the 43rd largest. Racially, 83% of the students are white, 14% are black, and 3% are from other minorities. The daily attendance rate is 94%; the dropout rate is below that of the nation. Of the 3,656 county teachers, 74% are female, 85% are white. The average age of teachers is 40 and 46% have been teaching fifteen or more years.

The school system is governed by an eight member school board. Seven of the members are appointed by the governor for staggered five-year terms after community input through nominating conventions. No member may serve more than two consecutive full terms. The other member is a student who must be a senior and who is selected by the Chesapeake Regional Association of Student Councils for a one-year term. The student member has the same privileges as the other board members. The Board appoints a superintendent for a four-year term who serves as the executive officer, secretary and treasurer of the Board.

The school system is fiscally dependent upon the county general purpose government. After negotiation with organizations representing personnel, the Board submits an annual proposed budget to the County Executive by March. The County Executive may then delete from, but not add to that budget before submitting it to the County Council by May. The Council conducts hearings after which it may approve the budget as submitted, restore that which was deleted by the Executive, or make further deletions of its own before establishing a final budget by June 1. The Board must then finalize its budget for the ensuing fiscal year which begins on July 1.

Local funds account for 63% of the school system's FY88 operating budget of approximately $251 million. Of the remaining amount, 32% comes from the state, 3% from the federal government, and 2% from other sources. The per pupil expenditure is $3,825. The cost of public elementary and secondary education represents 52.4% of the county's total budget. Property taxes supply 33.5% of the county's revenue and, thus, are the largest source of local revenue for education.

Public schools in Anne Arundel county are fortunate to exist in a growing environment with the economic and cultural resources to support excellence in education. For a more extensive discussion of the factors affecting public schools in Anne Arundel County, the reader is encouraged to view the companion audiovisual presentation, "Opportunities for Excellence: A Demographic View."

CHAPTER III

PROGRAM AREAS

This chapter presents a report from each program area. Areas are presented in alphabetical, not priority order. Each report includes the present status of the program, findings from a review of relevant literature, the recommendation(s), steps necessary to implement the recommendation(s) and projected outcomes.

PROGRAM AREA: ADULT BASIC EDUCATION

PRESENT STATUS

The Adult Basic Education (ABE) program is funded totally by federal funds as a result of legislation passed by Congress in 1964. ABE consists of three separate components: Basic Skills, English as a Second Language, and Pre-General Education Development (GED). The ABE program serves citizens of Anne Arundel County, sixteen and older, who are illiterate, uneducated, unemployed, and/or disadvantaged. Since its inception, the ABE program has steadily grown in enrollment to serve approximately 10% of the targeted population of 12,000 clients on an annual basis. Federal funding regulations stipulate that to be eligible to enter the ABE program, a person must be functioning at or below the eighth grade level and be at least 16 years old.

The objective of the basic skills program is to help develop adult students' proficiencies in reading, writing, and arithmetic. The major emphasis is directed toward the acquisition of basic academic skills (K-4). Very few students start at the K-4 program level and go on to get a high school diploma. However, it is not unusual for students who start at grade level five or above to earn the GED.

The basic program is competency based and espouses the philosophy of the state sponsored Competency Based Adult Education Project:

> Recognizing the large and diverse population of educationally disadvantaged adults in Anne Arundel County and responding to the Civil Rights Act of 1964, which mandates the provision of equal education opportunities to all adults, the Adult Basic Education program supports the Maryland Adult Basic Education mission statement and is committed to providing a full range of educational services throughout the service area.
>
> The Adult Basic Education program interfaces with numerous community and government agencies and institutions to provide opportunities for students to attend instructional programs in convenient locations throughout the county.
>
> ABE teaches basic skills through learning experiences based on competencies in consumer economics, community resources, health, occupational knowledge and government and law.
>
> In essence the Adult Basic Education program strives to improve the quality of life for participants by providing a comfortable, self-paced learning environment to promote the economic, cultural and social growth of each individual.

Anne Arundel County has a foreign born population which numbers around 11,000 and, hence, has the fifth largest English for Speakers of Other Languages (ESOL) program in the state with an enrollment of 400. ESOL classes are designed to develop the communication skills of non-English proficient (NEP) and limited English proficient (LEP) people.

The Pre-GED component of Adult Basic Education is geared to the highly self-motivated student who is on the seventh or eighth grade level and who plans to complete the GED and perhaps go on to college. Emphasis is placed on the enhancement and refinement of basic skills to a level commensurate with passing the GED. The basic county curriculum and the state adult education curriculum are used as program guides. ABE instructional materials are current and appropriate for adult learners. They are periodically reviewed and evaluated.

The enrollment in ABE fluctuates, but according to figures supplied by the Office of Adult Basic Education in the 1985-86 year-end report, there were 1,304 students served by 28 teachers, teaching 57 classes. Twenty-one of these students passed the GED test and 11 others obtained a regular Maryland high school diploma. ABE teachers are usually Maryland certificated and teach in the county's regular K-12 program. However, there are a few teachers who come from outside the system; for example, two instructors come from Gallaudet College in Washington, D.C. and teach basic skills through signing to the deaf. In addition, more than 20 volunteers from the private sector and higher education, many of them retirees, help the ABE staff provide skills for clients. Classes are held at some thirty-five county sites which include schools, churches, community centers, and hospitals.

Staff development is an on-going function with two nights of teacher in-service/orientation at the beginning of each school year and an additional four or five workshops held throughout the year. These workshops are sponsored by ABE, the staff development office, Maryland State Department of Education, or a combination of the above and focus on the uniqueness of adults in the learning situation. Teaching strategies, communication skills, drug and health issues, and the use of computers are examples of workshop topics.

RESEARCH

A review of the literature produced the following findings:

- Unlike the past, when large numbers of workers who lacked even basic academic skills could obtain unskilled jobs, workers of the future will have to possess at least the basic skills.

- There are thousands of people in the United States, primarily minorities, who never entered or completed secondary school and who need basic skills in order to acquire low entry level jobs.

- There are large numbers of people who, because of the lack of a basic education, are not self-fulfilled and are not meeting their educational and occupational potential. As a result, they often cause social and economic problems in society.

- Twenty-six million American adults are listed as functional illiterates.

- There are 51 million "new illiterates." These are adults who cannot function in today's more complex information age society.

- Four hundred thousand Marylanders are functionally illiterate.
- Maryland's adult education providers service only about 6% of the adult citizens needing basic education.
- County adult education providers service approximately 10% of the county's illiterate population.

RECOMMENDATION

In order for people to be successful in society, both economically and personally, they will need to obtain a higher level of education than what was needed in the past.

It is recommended that:

> **ADULT BASIC EDUCATION (ABE) BE PROVIDED FOR ALL CITIZENS WHO DO NOT HAVE A HIGH SCHOOL DIPLOMA, ARE NOT ENROLLED IN A REGULAR HIGH SCHOOL PROGRAM, AND ARE AT LEAST 16 YEARS OLD**

In order to implement the above recommendation, it is proposed that:

- Efforts to recruit adult students be broadened and increased with the emphasis changed from primarily print media to visual and aural media such as television and radio
- The intake/registration locations be increased to include not only schools, churches, and community centers, but other places where people congregate, such as shopping malls, street corners, and worksites
- Instructional sites be expanded and located in the communities where the potential students are located
- Curriculum be revised to include hands-on computer assisted instruction
- Provisions be made for students to pursue ABE classes via home computers, interactive television, and instructional television (ITV)
- More volunteers be recruited in order to provide adequate one-to-one tutorial services
- Funds be secured to ensure that sufficient ABE programs are provided to meet the county's need for such programs
- Competitive compensation, competitive benefits, appropriate preservice, and continuing inservice be provided for all ABE teachers

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- A higher percentage of the county's adults will obtain a high school diploma or its equivalent.

- A higher percentage of adults will be gainfully employed and will be able to adjust to the changing work environment.
- A higher percentage of adults will participate in the democratic process.
- Adults who participate in the program will become more self-sufficient.

PROGRAM AREA: ART

PRESENT STATUS

Art instruction is provided at all grade levels and is taught by certified art teachers in grades 1-12. The elementary program has a fundamental skills emphasis and is required for all students. The middle/junior school program continues the fundamental program through a studio environment and is a 12-week per year requirement for all students. All senior high art courses are offered on an elective basis. Credits earned through completion of art courses may be applied towards the Maryland State Department of Education fine arts requirements for graduation.

The elementary art program is designed to meet the needs, interests, and abilities of students at all instructional levels. A broad range of experiences is offered to enable each individual to grow intellectually, socially, physically, and emotionally. Children advance in a sequential program of instruction according to abilities, background experiences in art, and maturity levels. Progress is measured in accordance with different stages of creative development and identified work expectancies at the manipulative stage, the symbolic stage, and the realistic stage. The program content and activities increase in complexity as children advance to higher levels of growth. The program activities include the use of a broad variety of tools, materials, and processes in the following areas: drawing, painting, printmaking, sculpture, modeling, constructing, crafts, and ceramics. In all aspects of the program, children are guided in their creative efforts so that expressions may be fused with the fundamentals of structure, design, and composition in art production. Art is offered either independently or in relationship to other subject areas in the school program, serving as an enrichment and extension of each child's total learning.

The middle/junior high art program seeks to provide all students with a sound fundamental program through a studio environment. Students are exposed to an increasingly wider variety of art activities which prepare them for advanced senior high art courses. Broad aspects of art professions and related fields are introduced to stimulate interest as possible career opportunities.

The program offers a diversified range of two- and three-dimensional activities that increase manipulative, organizational, and expressive skills. Courses are general in nature and emphasize exploratory and experimental approaches involving the use of varied materials, techniques, and processes. The program builds upon sequential student experiences related to their needs, interests, and abilities. Students are made aware of the elements and principles of design as skills and techniques are refined in the areas of painting and drawing, graphics and commercial art, sculpture and modeling, crafts, ceramics, lettering, and layout. A knowledge and appreciation of man's visual art heritage are developed as works of major artists, craftsmen, and architects are examined and discussed. Within all aspects of the program, an appreciation and enjoyment of art as a constructive leisure time activity that enriches everyday living is emphasized.

The senior high art program includes courses in fundamentals of design, painting and drawing, graphics and commercial art, sculpture and modeling, ceramics, crafts, and art history. These courses encourage the development of personal skills. Sequential course offerings allow individuals to extend their knowledge and skills in advanced courses that include increasingly complex and challenging experiences in different art areas. Students having intense interests in particular art fields have the option of pursuing in-depth courses in preparation for future career choices. All courses emphasize the development of a knowledge and appreciation of man's visual art heritage. Works by major artists are analyzed and discussed along with the relationships between past and present art styles and techniques.

Beyond the regular art classroom experience, weekend and summer camp programs are provided for the artistically talented student. Criteria for entry into the summer programs includes self nomination, portfolio review, and art teacher nomination. Both nomination forms comprise a checklist of observable behaviors that indicate outstanding ability in specific categories.

At the senior high school, gifted art students have the opportunity to pursue advanced levels of each major studio course offered at their particular school. Art History is offered at five schools and is designated as an advanced placement program. In order to accommodate classes with insufficient enrollment, cable TV is utilized to transmit the Art History course from one school location to other schools in the county. Also, a Portfolio Day provides an opportunity for seniors to meet with college representatives for interviews and portfolio reviews.

All schools in the county have the opportunity to participate in a variety of educational programs outside the school setting. The location of the county with its close proximity to Baltimore and Washington affords students the opportunity to visit numerous cultural centers. Field trips to the National Gallery of Art, Hirschhorn, Corcoran, Walters, and Baltimore Museum serve as enrichment programs to the general art curriculum. In addition, Maryland Hall for the Creative Arts offers an opportunity for grade K-12 students to be involved in a variety of art programs.

Parents are utilized in different ways. Many elementary schools have a program called "Picture People". Parent volunteers with an active interest in art history present an art reproduction and a discussion lesson to each classroom monthly. This program is highly recommended by the central art office. Other parents are working as volunteer aides in art classrooms.

Presently 133 art teachers (63 elementary and 70 secondary) are employed on a full time or part time basis.

Five teachers are assigned on a part time basis to the central office as resource teachers: two for elementary schools, one for middle/junior schools, and one for senior high schools. These teachers, who are the equivalent of 1.3 full time positions, provide services for new teachers, those requesting help, and those needing assistance with their teaching responsibilities.

Services for handicapped and special children are provided through mainstreaming in the schools. Also, instruction is provided by art teachers in the special centers.

Since 1975, 13 different Maryland State Department of Education (MSDE) approved workshops have been offered in art education, each awarding three credits. Fifty-one workshops have been conducted since 1976 in numerous studio and methods courses.

Yearly inservice programs are offered on all levels and provide opportunities for leadership and implementation of curriculum objectives.

Student artwork is regularly on display at various locations throughout the state. Exhibits appear in public office buildings, public libraries, shopping malls, and schools. Teachers set up these exhibits after school hours on a volunteer basis.

Although particiation in contests is not required, it is encouraged when themes relate to the student's interest or when there is a relationship to curriculum content.

Each elementary, middle, junior, and senior high school has a designated area for art instruction. In instances where population growth has exceeded the school capacity, instruction is also given in alternative work areas, some of which are not suited for the program.

Special attention has been given to the renovation of facilities to meet Occupational Safety Health Administration (OSHA) guidelines in order to provide a safe and healthy environment for staff and students.

Teachers are being inserviced on health hazards in arts and crafts. Beginning with the 1986-87 school year, art supplies must have a Certified Product (CP) Seal or Approved Products (AP) Seal.

RESEARCH

A review of the literature produced the following findings:

- By participating in quality school art programs, students grow in their abilities to perceive, to express, to know, and to judge.
- Students depend more and more on visual images for their information.
- Art is fundamental to a basic education.
- Art entrance requirements are increasing in colleges and universities.
- The public is willing to pay for the personal, social, and financial costs which accompany school reforms, but they want these reforms to encompass more than the traditional academics.
- Art provides training which develops abilities involved in spatial processing, intuition, holistic thinking, and creativity thought to be associated with the right hemisphere of the brain.
- Active involvement and learning in the arts is a deeply human experience which has a large carryover value to other areas of one's life in the present, as well as in the future.

RECOMMENDATION

A knowledge of the arts is basic to a fundamental education. Art provides the student with a special insight and sensitivity about the environment and its people. Art is one of the best ways to understand human civilization. It reflects its creators and provides a direct communication with the past. A successful curriculum recognizes the balance between knowledge of art, art production, aesthetic perception, and critical analysis. Without intensive, carefully designed instruction, few students can grow in artistic knowledge, aesthetic valuing, skill, or imagination.

It is recommended that:

> **THE ART PROGRAM BE MAINTAINED AND REFINED AS A BASIC PART OF THE COMPREHENSIVE CURRICULUM, K-12**

In order to implement the above recommendation, it is proposed that:

- Highly qualified art teachers be provided within the schools
- A program for the artistically gifted student be provided with consideration given to the following possibilities:
    - designation of a time at the elementary level when those students can come together to work
    - centralization of locations for highly motivated students to seek extra-curricular instruction beyond the regular school day
    - designation of a period for students in the Independent Study program to meet with staff and more stringent monitoring of the established criteria for this program at the secondary level
    - development of outside community resources for funding certain cultural arts presentations
    - development of an artist in residence program to complement the general arts program
- A countywide kindergarten art program be developed and taught by an art teacher
- A resource program utilizing the cultural arts team be developed for identified students demonstrating deficiencies in sensorimotor skill development
- The effectiveness of art programs be increased through:
    - establishment of programs to promote creative communication of the arts with other curricula areas
    - expansion of correlating experiences with the art curriculum
    - extension of the art program into the general classroom for an interdisciplinary approach to the art curriculum
    - reinforcement of the cultural arts team approach in providing programs
    - effective implementation of the scope and sequence guidelines through the expansion of existing articulation procedures to include teachers of art at all levels in each feeder school system
- The public be educated to the benefits of art through:

  - promotion of the correlation between art instruction and future leisure activity
  - provision of teacher compensation at all levels to expand the county art program for interested groups after school hours (e.g., clubs and adult education programs)
  - development of programs to educate the public to the importance of art in all aspects of education and daily life

- Programs be implemented which will enhance education and/or career opportunities for high school seniors through:
  - development of intern programs and job placement centers
  - establishment of a teacher advisory board to various higher educational institutions (e.g., Maryland College of Art and Design Education Advisory Board)

- Current and new technology be incorporated into the art program through:
  - provision of sufficient time for teachers to be inserviced in new technology for use in the art program
  - installation of computers in secondary art classrooms
  - technical training for teachers in video techniques and filmmaking
  - development of computer programs for art curriculum (e.g., art careers, literacy, history, techniques and terminology)

- Proper facilities be provided which are adequately equipped to implement programs in each school through:
  - alternative funding for specialized materials
  - design of school facilities which will enhance physical integration of departments
  - determination of class enrollment by physical size of room and subject being taught
  - the upgrading and annual monitoring of facilities to meet Maryland Occupational and Safety Health Act (MOSHA) requirements
  - establishment of photography as a separate course offering with limited class size
  - provision of facilities for the study of photography within the physical area of the art department

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will develop through the visual arts the ability to perceive and respond to ideas, experiences and their environment.

- Students will develop an understanding of how visual art is created as a response to images, forms and experiences.

- Teachers will acquire knowledge and skills needed to implement and enhance the curriculum.

- School facilities and equipment will reflect program needs.

- Students will be more aware of career opportunites in art and develop skills to participate in these opportunities.

- Students will develop a comprehension of how the visual arts interrelate with other forms of human creativity, such as the humanities and the sciences.

- Teachers and students will understand the health and safety rules in the art classroom.

- Students will develop an appreciation of the visual arts as a basic aspect of history and the human experience.

- Students and adults will participate in art as a cultural and leisure type activity.

PROGRAM AREA: CENTRAL OFFICES SECRETARIAL SUPPORT SERVICES

PRESENT STATUS

Some of the major functions of the central offices are to support the school programs, provide direction for the system, establish systemwide policies, and keep the public informed concerning school system offerings and activities. The Board's main office is located on Riva Road in Annapolis with additional facilities for media production located at the Green Street School in Annapolis, and maintenance and operations facilities located in Pasadena, Ft. Smallwood, and Millersville. In 1986-87 there were 170 central office secretarial/clerical personnel who served the 272 central office administrative personnel. Of the 170 secretarial/clerical personnel, 168 are female, 2 are male.

RESEARCH

A review of the literature produced the following findings:

- Board of Education central offices are increasingly availing themselves of state-of-the-art technology.

- Networking among office computers is becoming a standard practice.

- The duties of the secretary are changing from primarily clerical tasks to an increasing number of administrative responsibilities.

- Clerical positions are demanding higher level technological skills, better communication skills, and more education.

- The principles of business management are increasingly being employed in school system operations.

RECOMMENDATION

The central offices will continue to increase the services they offer to the schools. With the increased use of computers and other technology, and with the full realization of what this technology can do, the increase in services should be gained without an increase in the number of personnel.

It is recommended that:

> **MODERN TECHNOLOGY BE APPLIED TO THE CENTRAL OFFICE OPERATIONS IN ORDER TO STREAMLINE PROCEDURES AND INCREASE THE QUALITY AND QUANTITY OF SERVICES PROVIDED**

In order to implement the above recommendation, it is proposed that:

- Every secretarial position be re-evaluated and a secretarial team concept be adopted

- The following be included in qualifications for personnel hired for secretarial positions:

    - high technology skills such as word processing and data processing

    - excellent written communication skills

    - excellent interpersonal skills

    - editing skills

- Secretarial staff duties be expanded

- Adequate training be provided to all central office secretaries so that they have the ability to access needed information and to use the latest office technologies

- Word Processing Center be used only for large, time-consuming jobs

- Desk top computers which are networked with each other, with those in the schools and with the Board's mainframe be provided for central office personnel

- The principles of good business management be applied to all administrative aspects of the school system

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Clerical staff will possess high level skills and will function more in the capacity of administrative assistants and less as traditional secretaries.

- The transmittal of information will be faster and more efficient.
- Central office personnel will be able to access needed information.
- Clerical staff will be flexible and be able to perform many different duties.
- Territorial boundaries will be broken down and replaced by teamwork.
- The county's schools and the public will be better served.
- The school system will be run in a more businesslike manner.
- More secretarial positions will be filled by males.
- Efficiency and effectiveness of staff will be increased.

PROGRAM AREA: CENTRAL SERVICES

PRESENT STATUS

The Division of Central Services handles the school system's printing needs, mail services, and central office telephones. The division, which is headed by a supervisor, has seven people in the print shop, six in mail services, one microfilm technician, one graphic arts technician, one graphic artist, one parking lot attendant, one administrative secretary specialist, and five telephone operators. There are also one or two temporary people hired at various times throughout the year to work in the print shop.

Although the work load has increased, the number of staff in the print shop has remained the same for the past 15 years. The print shop produces an average of over 100 jobs per month. This includes all kinds of one and two color printing, from a simple one page memo to complex books with hundreds of pages. One or two color flyers as well as multi-colored signs and newsletters are also produced monthly. In addition, the quick copy center produces an average of approximately 1/2 million copies a month. The amount of work coupled with a lack of space and a lack of personnel necessitates the farming out of approximately one-fourth of the system's printing jobs. Although the technology exists, at the present time there is no operator to allow complete utilization of the typesetting equipment so that information can be received electronically from the word processing center.

Mail services distributes a variety of materials: communications to board members, interoffice mail, all interschool mail, and all audio visual materials to schools. Each school in the county receives materials through the Central Services distribution network on a twice-a-week basis. Office locations other than Riva Road receive delivery once a day. Riva Road interoffice deliveries number six or seven per day.

Out-going items processed by the Mail Services section encompass a wide variety of materials. The monthly average is 171,660 pieces of interschool mail, 18,158 pieces of U.S. Mail, 7,000 films, 200 United Parcel Service packages and 1,300 cartons of printed materials. Over $65,000 is spent on postage per year. Mail services also handles packages and letters via Federal Express when overnight delivery is required. In addition, mail services handles all incoming U.S. Mail. The monthly average is 56 bags, 645 parcel post pieces and 753 United Parcel Service packages.

RESEARCH

A review of the literature produced the following findings:

- New printing equipment which speeds the process and enhances the final product is constantly being developed.
- Graphics capabilities have been greatly improved with new computer technology.
- The capability to receive printing jobs electronically will improve, resulting in the wider use of the compugraphics typesetting process.
- As more and more office work stations acquire computers, the use of electronic mail will increase.

RECOMMENDATION

Technology presently exists which has vastly improved the way in which information is produced and transmitted. The school system has not taken full advantage of this technology. Not taking full advantage of these advances is costing the system resources and is preventing the system from producing high quality print materials.

It is recommended that:

> **THE METHOD OF PRODUCING AND TRANSMITTING INFORMATION BE MODERNIZED THROUGHOUT THE SCHOOL SYSTEM**

In order to implement the above recommendation, it is proposed that:

- The print shop facilities and equipment be modernized in order to meet the system's printing demands and to provide the following capabilities:
  - color printing
  - 17 x 22 page size
  - perfect binding
  - automatic counting
  - automatic envelope stuffing
- The quick copy center be modernized
- Compugraphic capabilities be improved so electronic transmission of materials to be printed is feasible and efficient
- Transmission of information to central offices and schools be conducted electronically

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Operating cost efficiencies will be realized.
- Printed materials will be of high quality and include graphics.
- The turn around time for print jobs will be decreased.
- The ability to respond quickly to priority requests will be enhanced.
- The speed and reliability of communications will be increased.

PROGRAM AREA: COMMUNITY INFORMATION

PRESENT STATUS

There is no office of community information in the school system. The person holding the position of writer/editor, publications specialist reports to the superintendent. This position has been in existence since December 1983. Another staff person has been assigned to work on special projects for extended periods of time. This person performs major writing, editing, proofreading and design work for the production of three newsletters and other public information materials. Other responsibilities include working with the news media as a liaison and coordinating the flow of story ideas and information from the schools to the media via "tip sheets" and news releases, developing and promoting various employee recognition programs, and providing technical assistance to school-based and central office personnel concerning publicity and community information efforts.

RESEARCH

A review of the literature produced the following findings:

- Boards of Education that are committed to good communication have strong policies on communications and/or public relations.
- Board policy sets the tone for a comprehensive public relations program. The most effective programs are those that include all school system employees as part of the communications team.
- School public relations is defined as a planned and systematic two-way process of communications between an educational organization and its internal and external publics, designed to build morale, goodwill, understanding, and support for that organization.
- School districts of all sizes are recognizing the growing need for and benefits of positive community relations.
- There is a recognized need to communicate with the non-parents who now make up a large percentage of the population.
- It is essential that a written, measurable plan be in existence for the school system as well as for the various departments and individual schools.

- Any plan initiated by a school system to foster positive community relations must be an organized, research-based, centralized plan allowing for periodic evaluation.
- School systems of all sizes are designating personnel and/or hiring additional staff to formulate and oversee community information programs.
- Investing in good community relations will ultimately benefit the community and the school system.
- Doing a good job and then telling the school story is the business of every school system employee.
- Public relations is an integral part of effective school management.

RECOMMENDATION

Education is clearly on the public's agenda. To ensure that education remains a high public priority, the school system must focus the community's attention on its needs and its accomplishments. There must be a commitment to open, two-way communication that will elicit the public understanding and support that is so vitally important to the goal of providing a quality education to the county's youth. There is a need for a comprehensive community information program based upon clear Board policy and carefully drawn goals and objectives.

It is recommended that:

AN OFFICE OF COMMUNITY INFORMATION BE ESTABLISHED

To implement the above recommendation, it is proposed that:

- A strong, clear policy on communications be adopted from which a comprehensive community information program can be developed
- Adequate personnel be hired to develop and oversee a systematic, well-planned community information program
- Adequate funding be provided to accomplish clearly defined goals and objectives related to community information
- This office be attached directly to the superintendent's office

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Staff morale and internal communications will be improved.
- Consistency and accuracy of information provided to the public will be improved.
- The public will have a better understanding of the school system, and school officials will have a better understanding of the public's attitudes and needs.
- Two-way communications between the general community and the school system will be improved.

- Public support for and confidence in education will increase.

- Both the school system and the community will be strengthened.

PROGRAM AREA: COMPUTER EDUCATION

BACKGROUND

The Office of Computer Education Programs was established during the fall of 1982. With the advice of an ad hoc advisory committee the following goals were established for the Computer Education Program:

- To provide all students a learning environment in which they can comfortably interact with computers and become computer literate. Computer literate students should:
  - have a knowledge of the capabilities and limitations of computers
  - be able to operate a computer system
  - be able to utilize available software
  - have had an introduction to computer programming and computer languages
  - have a knowledge of computer related careers
- To provide all students with the opportunity to develop their knowledge of computers and their ability to use the computer as a problem solving tool to a level commensurate with their interest and ability
- To afford all areas of instruction the opportunity to utilize computer resources whenever they effectively enhance learning

In the process of working to attain these goals the activities of the Computer Education Office have centered on three areas: development of curriculum, staff inservice, and evaluation and procurement of software and hardware.

CONSIDERATION: CURRICULUM

PRESENT STATUS

In the fall of 1982 the only courses offering computer instruction (excluding the Data Processing classes offered by the Business Education Departments) were Computer Mathematics I and II. These classes in the mathematics departments of the high schools taught the BASIC and FORTRAN languages through mathematics applications.

Since then, several curriculum guides have been developed under the auspices of the Office of Computer Education Programs. In 1984 the Board of Education adopted a set of Computer Education Curriculum Guides for kindergarten through the sixth grade. In accordance with the goals for the Computer Education Program, these guides stress computer literacy for all students and the use of computer activities to enhance instruction in many content areas. These guides are currently being implemented in all elementary schools. However, this effort is hampered by the fact that no time is formally allocated in the elementary school day for the teaching of computer education content.

A curriculum guide for computer education in the middle/junior schools has also been developed. Continuing the computer literacy theme of the elementary guides, emphasis is placed on the applications and the problem solving aspect of computer use. Units on word processing and the use of data bases and data analysis will be taught in the language arts and social studies departments, respectively. The mathematics departments will present units on using the BASIC language in mathematics problem solving.

A step toward the accomplishment of the second goal was the development and implementation of an advanced placement course entitled Advanced Computer Science. This was followed with the implementation in the fall of 1986 of a high school Computer Applications Course which provides students with instruction on the applications and problem solving software currently available. Two additional computer science courses will be added to the curriculum in the fall of 1987. They are Computer Science: BASIC and Computer Science: Pascal. Both of these courses are designed to present the study of programming languages and problem solving methods from a computer science perspective.

In order to strengthen the computer science instruction available to students, the establishment of a Computer Science Department at the high school level has been requested. The anticipated offerings of this department would include computer language courses stressing computer science concepts and computer applications in various disciplines. The approved and currently offered Advanced Computer Science and Computer Applications courses, along with additional courses which are now in the developmental stages, would be offered by this department.

The Office of Computer Education Programs works with other content areas to introduce computer activities into the curriculum where appropriate.

RESEARCH

A review of the literature produced the following findings:

- By 1990 at least 85% of the work force will be interacting with computers in some way. The study and use of computers in schools is important to maintaining relevant and quality education. However, for students there is often little or no access to computer activities and computer instruction.
- Computer education programs currently consist of instruction about computers, instruction with computers, and/or instruction by computers. There is increasing emphasis on instruction with computers and movement away from instruction about computers.
- Several studies show gains in achievement as a result of computer assisted instruction. However, the methodology of much of this research has been questioned. A consensus has not yet emerged on the most effective use of computers in education. Research in this area is continuing.

RECOMMENDATIONS

Computers have become an integral part of a rapidly changing technological world. They provide individuals with access to information and ways of analyzing masses of data expeditiously. They also serve as a personal problem solving tool. The power of computers can be used advantageously in many disciplines. It is recommended that:

A COMPUTER EDUCATION PROGRAM BE IMPLEMENTED, K-12

In order to implement the above recommendation, it is proposed that:

- A periodic review and revision of the existing Computer Education Scope and Sequence for elementary schools be established and implemented
- Modification and refinement of the secondary curriculum with emphasis on both integrating the computer into the current instructional program and providing specialized computer education classes be further developed
- An emphasis be maintained concerning the use of the computer as an instructional tool in all content areas
- The use of computers to foster creative thinking and problem solving skills be encouraged
- Time and personnel be provided to develop and revise computer education curriculum materials in all content areas, K-12
- Time in the elementary school week be formally allocated for the teaching of computer education content
- A nine week computer education course be established in the middle/junior high schools
- A computer science department be established in the senior high schools
- Funds and time be provided for teacher/administrator inservice
- Appropriate software be provided for all content areas
- Equipment be provided to implement the proposed computer education program
- Keyboarding be taught in the primary grades

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will gain knowledge of the capabilities, limitations, applications, and implications of computer technology.
- Students will learn to use the computer as a personal learning and problem solving tool.
- Staff will use the computer as an aide to enhance instruction.

- Students will obtain computer knowledge applicable to their chosen career field.

CONSIDERATION: STAFF

PRESENT STATUS

The professional staff of the Computer Education Office consists of a coordinator and two resource teachers. In addition to performing the normal central office functions, the Computer Education Office personnel work with staff in other curriculum areas to encourage the use of computers in instruction in their program areas.

Communication is maintained with school staffs through a system of computer liaisons. Each elementary and secondary school has identified a computer liaison. The liaisons are asked to assist teachers in their schools with computer use and to oversee the computer equipment. These duties can require several hours per week. However, no released time is provided for the computer liaisons. The secondary liaisons are provided with substitute time for two day-long meetings per year. There are no provisions for the elementary liaisons to meet.

Recent advances in technology have led to the accessibility of microcomputers for both elementary and secondary schools. This has led to the need for an intensive inservice effort to provide teachers with a familiarity with the computer equipment now available to them. Numerous sections of the computer literacy inservice course have been held. Several sections of programming courses have also been held. In addition, other program coordinators have offered computer literacy courses specifically for their teachers.

In an effort to prepare teachers to teach computer science courses and to assist them in attaining projected Computer Science certification, classes have been offered in Pascal in conjunction with the University of Maryland and in Computer Applications in conjunction with the Anne Arundel Community College.

The Office of Computer Education also sponsors inservice offerings dealing with topics of current interest. These activities take place both after school during the school year and as special one-day workshops in the summer. Topics have included introductions to particular pieces of software, techniques for teaching different computer languages, methods and activities for using computers in the instructional process, and instruction on operating various pieces of computer equipment.

RESEARCH

A review of the literature produced the following findings:

- The amount of time and training necessary to enable a teacher to effectively use computers in instruction is consistently underestimated. Teaching "about" computers is relatively easy but effectively teaching "with" computers requires a much deeper understanding. This applies to both teaching programming and integrating computer use into content areas.
- Lack of time to learn how to operate computers and to become familiar with available software is a major deterrent to computer use. Lack of in-depth computer knowledge also hinders computer instruction.

- Knowledgeable computer users among teachers are relied upon heavily for advice and assistance and are becoming overworked and overstressed.

- Educational agencies are considering instituting certification requirements for computer science teachers. Computer literacy requirements for all teachers are also being considered.

- Training opportunities available for school administrators and teachers in the use of technology in schools currently fall short of their needs.

RECOMMENDATION

The study of computer science and the integration of computer use in content areas are relatively new fields in education. Successful implementation of a new program is dependent upon the background, knowledge, and interest of the staff. It is recommended that:

> **ALL STAFF MEMBERS BE PROVIDED APPROPRIATE INSERVICE ACTIVITIES TO IMPLEMENT THE COMPUTER EDUCATION PROGRAM, K-12**

In implementing the above recommendation, it is proposed that:

- In the secondary schools, computer science be organized into a separate department with a department chairperson

- Additional support staff be made available to elementary schools

- Tuition costs for teachers who wish to become certified in computer science/computer education be assumed by the school system

- Adequate funding and time be made available for computer inservice for all teachers and administrators

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Computer science will be a recognized and distinct part of the curriculum.

- More teachers will use computers for instruction and for instructional management.

- More teachers will become certified in computer science/computer education.

CONSIDERATION: EQUIPMENT AND MATERIALS OF INSTRUCTION

PRESENT STATUS

Hardware and software are an integral part of any computer education program. During the period from September 1982 to February 1986, the school system's collection of hardware and software has grown steadily. (This section of the report does not address the holdings of the Business Education/Data Processing Department.)

The school system has provided a microcomputer for each 65 students at the elementary school level. Each middle/junior high school has a computer laboratory consisting of at least 16 computers. The senior high schools all have at least one computer laboratory with a minimum of at least 16 computers capable of handling the computer languages currently being taught (BASIC, Pascal). As computer usage increases in the secondary schools, additional computer labs are being provided to increase student and teacher access to computers. As of September 1986, a second computer lab had been added to three high schools.

The original purchases of microcomputers were made with federal funding. However, beginning in the 1983-84 school year, local funding was used to finance the purchase of computer equipment. In addition, several microcomputers have been purchased for schools by local parent and community groups. Schools have also used their own funds to purchase computers for special uses.

For reasons of evaluation of software, staff inservice, curriculum development, and repair and maintenance of equipment, the type of equipment purchased has been kept fairly uniform. One brand of microcomputer (Commodore) is used in the elementary schools and another brand (Apple) is used in the secondary schools. Maintenance and repair of the computer equipment is provided by the Media Services repair personnel.

Software is purchased from a budget allocated to the Computer Education Office. Members of the Computer Education Office staff consult with staff members from other disciplines to identify outstanding pieces of software for each discipline. If funding is available, this software is purchased for schools. Individual schools purchase additional software from their materials of instruction (MOI) funding. However, the amount of MOI funding has not increased commensurate with the additional cost of purchasing computer software.

RESEARCH

A review of the literature produced the following findings:

- Computer technology is changing rapidly. Additional power and capability is provided with each change. Equipment and software can quickly become obsolete.
- The number of computers in schools is increasing rapidly. However, there are still not enough computers available to provide students with adequate access to computer resources. In many schools a relatively small number of students receive computer instruction.
- Much of the early software for education has proved to be of poor quality. Currently there appears to be an increase in the amount of good quality software being developed. Educators need to carefully evaluate software to be used with students.
- Inadequate budgets for the purchase of software have hindered the growth of appropriate and effective computer usage.
- There has been a tendency for school systems to purchase computer equipment without planning for its use and without providing for sufficient accompanying software.

RECOMMENDATION

In order to meet the needs of students, computer science technology must be implemented throughout the schools. Implementation will be enhanced with appropriate equipment and quality software, textbooks, and support materials. It is recommended that:

> **STATE-OF-THE-ART HARDWARE AND SUPPORT MATERIALS BE PROVIDED TO IMPLEMENT THE COMPUTER EDUCATION PROGRAM, K-12**

In implementing the above recommendation, it is proposed that:

- The purchase of state-of-the-art computer equipment to ensure access by all students consistent with attaining curriculum goals in all disciplines be continually pursued
- Obsolete equipment be replaced and/or upgraded in order to reflect advances in computer technology
- Uniformity in purchase of hardware be continued until compatibility is no longer a problem
- Procedures be developed and funding be available to purchase additional computer equipment and to upgrade current computer equipment on a regular basis
- The computer maintenance staff be expanded commensurate with repair needs
- The software evaluation and selection process be refined
- Departmental MOI funding specifically for the purchase of computer software and related services be increased
- A Computer Education MOI account be established at the school level
- A central software library be developed and maintained

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Sufficient modern and well maintained computer equipment and software will be available so that students may become knowledgeable computer users.
- Staff will be able to make informed purchasing decisions regarding software.
- Computer hardware and software will be upgraded continuously.
- The use of computers in instructional areas will be increased.

PROGRAM AREA: CONTINUING EDUCATION AND SUMMER SCHOOLS

PRESENT STATUS

There are six Continuing Education and Summer School Programs in the county which provide a variety of programs for both school age and adult students. They are Adult General Education, Adult Vocational Education, the Evening High School, the External High School, and the Secondary and Elementary Summer School Programs.

Adult General Education
Adult Vocational Education

Adult General Education and Vocational Education are partially state funded programs which provide opportunities for adults over 16 years of age who are not attending a regular day high school program to continue their education at selected secondary schools and vocational centers. Of the 1,102 students enrolled during 1985-86, 773 were in Adult General Education classes and 329 were in Vocational Education classes. These figures reflect an enrollment decrease of 56% in Adult General and 52% in Vocational Education over the past five years.

Evening High School

The Evening High School, which began in the 1967-68 school year at Severna Park High School, now holds classes at Glen Burnie, Meade, Severna Park, and South River High Schools. The program serves the following purposes:

- To provide opportunities for young people and adults to pursue an educational program and to earn a Maryland High School Diploma
- To provide an educational program for those who are unable to attend the regular day program
- To provide an opportunity for high school students, age 16 and over, who are presently attending day school to attend the Evening High School as an extension of their regular day school program
- To provide regular high school courses for self-improvement in intellectual, technical, and vocational competencies

Students attending the Evening High School must meet the same requirements as those students attending a regular day school.

During the 1985-86 fiscal year, there were 1,641 enrolled in the program. This reflects a 24% increase over the past five years. Of the 1,641 students, 325 or 20% were 20 years of age and under, and not enrolled in a regular high school program; 51 or 3% were 21 and over; 1,248 or 76% were concurrent students; and 17 or 1% were non-credit students. Enrollment of concurrent students has increased by 51% since 1981-82, while there has been a 47% decrease in the number of students who are 21 years of age or older.

External High School

The Maryland External High School Diploma Program was established as an alternative to the GED examination and Evening High School Program. The first site opened in Anne Arundel County in 1978. The program is for adults 18 years of age and over.

The Maryland Adult External High School Diploma Program measures:

- academic and life skills in the following areas: reading; writing; mathematics; occupational preparedness; and aesthetic, self, social, and consumer awareness
- individual skills in either an occupation; advanced academics; or a well-developed hobby such as music, art, photography or crafts

In addition, the program provides instruction to improve competencies in the above areas.

As of December 1985, there have been 1,120 graduates from this regional site. Approximately 68% of those graduates are employed. Although one year is allowed to complete the program, most students complete it in four to seven months.

The External Diploma Program has an advisory council composed of representatives from business, industry, the school system, graduates, and other local service agencies. The council which meets twice a year serves as a link with the community and recommends actions that will enhance the administration of the program.

Secondary Summer School

There are four Secondary Summer School Centers located in Glen Burnie, Meade, Severna Park, and South River Senior High Schools. The program is supported in part by student fees.

The program serves the following purposes:

- to provide an opportunity for students to improve grade averages in sequential subjects and to repeat courses in which they were unsuccessful
- to provide an opportunity for students to enroll in courses not available to them during the regular term
- to provide enrichment and credit courses for secondary school students

The guidelines and procedures used to administer the summer school program are well defined. Students are required to meet the same course work standards as maintained in the day schools. Regular attendance and proper conduct are an integral part of the regulations.

Student enrollment continues to increase each year. During the 1985 summer session, there was a total of 2,514 different students. These figures reflect a 50% increase since 1981. The number enrolled in review credit courses (2,151) is considerably higher than the number in original credit courses (615). Enrollment in enrichment courses totaled 225. Some students are enrolled in more than one type of course.

Elementary Summer School

Elementary school centers are established at locations in each area of the county. Subject areas include reading, mathematics, and computer. Classes are ungraded and the instruction is individualized in order to meet the needs of the children enrolled. The program is a voluntary one supported with student fees.

The Elementary Summer School enrollment for the 1985 session was 648. Of this total, 430 were in computer classes and 168 in math and reading. Enrollment in math and reading has decreased by 68% since 1981. Computer classes began in 1982 with 365 students. Enrollment increased to 760 in 1983, then dropped to 670 in 1984.

RESEARCH

A review of the literature produced the following findings:

- The age of people in educational institutions is rising; more adults are going back to school.
- Employment trends indicate a shifting from industrial production-type jobs to service and communication oriented jobs. This shift requires massive retraining of personnel and a higher level of education.
- Over 29% of the county adults do not have a high school diploma.
- A high school semester-long academic course can be successfully telescoped into a six-week summer session providing there is a highly motivated teacher with high expectations, a use of effective teaching techniques, a maximum degree of participation by students, and a high degree of support by parents.
- Participation in a summer school has not always been an effective means of enhancing academic achievement on the elementary level. Reasons cited for the non-effectiveness were:
  - time constraints
  - lack of organization
  - minimal expectations among students and teachers
  - lack of continuity between summer school and regular school
  - disproportionately large number of participants from low income families
  - poor attendance
- Summer school is well received by participants and parents.
- Summer school achievement is not differentially affected by grade level.
- Summer school and evening high school programs provide opportunities for students to graduate on schedule.
- Summer school and evening school programs provide enrichment opportunities and opportunities to receive remedial assistance.

RECOMMENDATION

Because of the academic needs of a large number of adult and school age students which are not being met through the traditional K-12 programs, there is a need for a variety of Continuing Education and Summer School Programs.

It is recommended that:

THE SIX CONTINUING EDUCATION AND SUMMER SCHOOL PROGRAMS (ADULT GENERAL EDUCATION, ADULT VOCATIONAL EDUCATION, THE EVENING HIGH SCHOOL, THE EXTERNAL HIGH SCHOOL, SECONDARY SUMMER SCHOOL, ELEMENTARY SUMMER SCHOOL) BE MAINTAINED AND THAT THE VARIOUS PROGRAM OFFERINGS BE ADJUSTED IN ORDER TO MEET THE CHANGING NEEDS OF BOTH ADULT AND SCHOOL AGE STUDENTS

In order to implement the above recommendation, it is proposed that:

- An assessment of employer needs and a survey of adult needs, along with an analysis of the present and future human resource potential, be made in order to determine program offerings
- Adult centers be established for the purpose of providing in one centralized location programs and concomitant support activities for the Adult Basic (grades 0-8), Adult General, and the External Diploma Program
- Means be developed to recruit and retain well-qualified teachers for the Continuing Education and Summer School programs
- Total program re-evaluation be conducted to ensure that it meets the current educational needs of the students
- The number of graduates in the External Diploma Program be increased
- The Secondary Summer School Program offerings be adjusted to meet the needs created by the high school graduation requirements
- Original credit courses and enrichment opportunities be offered by the Secondary Summer School Program
- All summer centers be adequately staffed with qualified personnel
- There be increased opportunities for elementary students to participate in summer school activities
- A wide variety of enrichment type activities as well as remedial math and reading classes be offered in elementary summer school programs
- Staff development activities be conducted in each program area to increase effectiveness
- The Adult General and Vocational offerings be increased to meet the needs of adult learners
- A program of promotional activities be implemented to increase the enrollment of adults
- A fee be charged for elementary summer school, but that no student be denied access due to a lack of funds
- Articulation between the home school and summer centers be increased

- The availability of government and/or grant funds for use in elementary summer school programs be explored

- Teacher and student expectations be broadened for summer school

- In remedial summer classes, basic skills and major content areas be emphasized

- Summer school programs be evaluated in sufficient scope to allow the identification of those characteristics that facilitate or impede summer achievement gains

- Individual summer school pupil instructional interactions be increased by:
  - utilizing low pupil/teacher ratios
  - providing tutors to aid summer school teachers
  - using computers to aid the summer school teachers in providing drill activities

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Course offerings will reflect the needs of the adult learners.

- The competencies of adults will be improved.

- A greater number of adults will be better prepared to meet the changing demands of society and the workplace.

- More students will graduate with their class.

- A greater number of secondary students will experience enrichment programs.

- A greater percentage of adults will earn a Maryland High School Diploma.

- A greater number of elementary students will maintain or improve their skill levels during the summer.

- A greater number of elementary students will experience enrichment activities.

PROGRAM AREA: CURRICULUM

PRESENT STATUS

The school system's curriculum is built on a K-2, 3-5, 6-8, 9-12 design model. The varied grade configuration within the county necessitates the modification of some curricular decisions. For instance, where grade 9 is housed in a junior high school and grade 6 in an elementary school, the students in those classes do not get the same curriculum offerings as their peers in schools with a 9-12 or 6-8 grade configuration. For example, the elementary school sixth graders do not get to take formalized foreign language programs and the English/language arts programs are different from their counterparts in middle schools. Also, junior high school ninth graders have fewer options, both curricular and extracurricular, than their counterparts in grades 9-12 high schools.

Curriculum in this county is defined as those educational experiences over which school personnel exercise some degree of control. The curriculum is developed on a countywide basis and is hierarchical in nature beginning with a rationale that answers the following what, why, for whom, when, and how questions:

- What course is being offered?
- Why is this course necessary?
- For whom is this course intended?
- When in the chronology of program should it be provided?
- How should it be taught?

The answers to these questions are based on extensive research conducted prior to the development of a philosophical statement and to writing the curriculum. Out of the rationale, the goals and then the objectives are formulated. The listing of content follows. Content includes skills, concepts, generalizations, principles, data, and understandings. Next comes the listing of specific activities which may be used during instruction. Lastly, comments relating to resources are stated. Expected levels of performance are not established because it is felt that these are best left to the teacher's judgment.

Curriculum development is a central office function under the direction of the executive director of curriculum. A curriculum development committee is usually comprised of classroom teachers, half of whom are nominated by the Teachers Association of Anne Arundel County (TAAAC); parents; and students. Consultants with expertise in content areas are frequently used. The committee usually meets during the summer when teachers are free from classroom duties. It is unusual for the committee to work more than 10 days.

A typical curriculum product would be comprised of a scope and sequence chart which synthesizes the structure of the program; the four column explanations of objectives, content, suggested activities, and resource/comment; and appendices for teacher use. The curriculum publications serve as a guide for instructional decision making.

The design committee also reviews text books that would best reflect the curriculum's expectations. They serve as an important, but not the sole, instructional tool in implementing the curriculum.

As a part of the design process the curriculum is sent to all schools for staff reaction and evaluation prior to the final edition. Curricula that represent new courses must be approved by the Board of Education.

Staff development efforts usually precede implementation.

When the curriculum is finalized and distributed for teacher use, it is accompanied by teacher evaluation forms. Teachers are encouraged to complete the evaluation forms prior to making a final report on the feasibility and useability of the new curriculum. On-going evaluation is accomplished through program visits.

In addition to the curriculum, a series of seven pamphlets written by resource teachers, each on a different curriculum issue, have been developed and distributed throughout the school system. The topics covered are homework, the quiet student, drill and practice, questioning techniques, concluding a lesson, vocabulary development, and establishing anticipatory set.

RESEARCH

A review of the literature produced the following findings:

- Effective curriculum clearly defines what teachers are to teach and students are to learn.
- Effective curriculum includes a plan for monitoring, supervising, and evaluating its implementation.
- For many years curriculum writers have proposed that curricula should contain statements of goals and/or objectives.
- Some contemporary writers have proposed that curricula should be thought of in terms of anticipated consequences of instruction or intended learning outcomes.
- Effective curriculum is characterized by:
  - a management process which addresses planning, organization, implementation, and evaluation
  - written curriculum guides
  - teacher involvement in curriculum development and implementation
  - provisions for differentiation based on the personalities, skills, and backgrounds of students
  - provisions for the development and reinforcement of essential skills which cut across subject areas
  - attention to the academic, psychological, and social needs of students
  - attention to the developmental needs of students
  - attention to sequencing and pacing
- New events and trends in society will not only greatly change the world but will also foster new insights about human beings which will eventually find their way into the thinking of the curriculum makers. Three areas of change which are significant for curricular thinking are:
  - the development and widespread use of computers
  - the women's movement
  - new knowledge about the brain and the mind

- Thinking about curriculum will constantly be challenged by new ideas, experiences, and political change.
- Transmitting developed knowledge is only a part of the curricular process; teachers must think about knowledge and experiences and construct personal meaning for their students.
- Content and organization are still major curricular issues.
- The curriculum in most American schools is not defined by suggested programs, curriculum guides, or by courses, but by the standardized, grade level specific textbook.
- It is estimated that students spend 75% of classroom time and 90% of homework time with textbook materials.
- Reading all too often is viewed as a series of hierarchically arranged, easily tested subskills. It should, however, be viewed as a strategic activity requiring intentionality, interest, and motivation on the part of the learner. The purposefulness, goal directedness, and meaningfulness which are inherent in the reading process need to be emphasized.
- Reading instruction should address both the skill and will of reading, and reading assessment should consider how well and how often students read.
- Curriculum development is inherently value laden and, therefore, political.
- The number of course offerings at the secondary level is being greatly reduced throughout the country.
- Mastery learning is effective for the acquisition and comprehension of subject matter content and for the acquisition of basic and reading skills.
- Language, reading, and math are the usual areas which receive systematic curriculum development at the local level.
- Systematic curriculum development at the local level is preferred and utilized to a far greater extent than the wholesale adoption of prepared curriculum.
- School districts that develop curriculum locally have a heavy involvement of teachers on curriculum committees.
- Local curriculum development efforts make little systematic use of prior research.
- A low priority is given to the development of a philosophy for the curriculum.
- Evaluative instruments are seldom used to refine the curriculum objectives for a new locally developed curriculum.
- Building administrators are active participants in local curriculum development.
- Commercial curriculums are not used for the foundation for locally developed curriculums.

- There is a growing trend toward qualitative as well as quantitative evaluation of the curriculum.

- In order to bring about meaningful and lasting curriculum change there needs to be teacher ownership in curriculum development.

- The processes of curriculum development and implementation should be seen as a continuum, and should involve many of the same professional personnel.

- Curriculum alignment which focuses on achieving congruence between adopted textbooks and state tests has been suggested as an alternative to curriculum guides.

- The Anchorage Alaska Curriculum Consortium 2000 has identified four groups of skills as essential for students to acquire if they are to lead productive lives in the future. The four are:

    - critical thinking skills
    - human relations skills
    - personal skills
    - societal skills

RECOMMENDATION

Although strides have been made in the effort to reduce the number of course offerings at the secondary level, the problems of overlapping of course content, course duplication, and proper course placement still exist. For example, consumer economics and drug and health issues cross several disciplines and are included in several different courses. There is too much to be taught to be duplicating efforts.

In addition to examining overlapping and duplication, the placement of certain courses needs to be addressed. The various foods courses, for instance, are now taught in the Home Economics Department; but with the future need for food handlers in the service industries, it might be more appropriate to de-emphasize the foods courses as electives for the general student population and emphasize the vocational aspects of food preparation and delivery. Another example is psychology. Psychology has long been considered a social science and has been taught in the social studies area. In the past few years, however, more research is pointing to the fact that much of behavior and personality is chemically determined and/or controlled. The placement of psychology may need to be examined.

Reading at the elementary level may need to be reassessed regarding the amount of time devoted to instruction in reading in the basal texts, especially in grades four and five. The purposefulness of reading, particularly for those students who have mastered the basic reading skills, might be better addressed and the time more wisely spent by using the time that now is spent on basal reading in other ways; ways perhaps that use reading as a means to gather information in other subject areas.

The United States has been criticized because its citizens, in general, do not speak foreign languages. Not only do they not speak a foreign language, they know very little about the culture and heritage of other countries. Foreign languages need to be a part of the curriculum for all students.

It is recommended that:

> **CURRICULAR ISSUES OF OVERLAPPING, COURSE DUPLICATION, COURSE PLACEMENT, TIME ALLOTMENT AND RELEVANCY IN AN INFORMATION SOCIETY BE ADDRESSED**

In order to implement the above recommendation, it is proposed that:

- Curriculum decisions be made, implemented, and evaluated in a manner such that they are relevant for a highly technical information-based society

- Even though all interest groups should be provided opportunities to participate in curricular decisions, mechanisms be implemented that will ensure that curricular decisions transcend special interest group demands

- Unnecessary duplication and overlapping of content among the various program areas be eliminated. This does not mean eliminating interdisciplinary approaches.

- Debate continue on the following issues:

  - Consumer economics be taught only in economics courses

  - The number of foods courses taught in the comprehensive high schools be reduced to one and the remaining courses be moved to the vocational high schools and revised to emphasize retail food preparation and handling

  - Psychology courses be moved from the social studies area to the science area

  - The time allotted to basal text reading in grades four and five be reduced

  - Formal instruction in foreign languages begin for all students in grade four

  - Middle/junior high schools allot more time to foreign languages and less time to language arts

OUTCOMES

With the adoption of this recommendation, the following outcome is projected:

- Students will possess the knowledge, skills, attitudes and behaviors to function effectively in a technical information-based society.

PROGRAM AREA: DEVELOPMENT

PRESENT STATUS

There is no office of development in the county school system. Grants and gifts are sought on an individual department or program basis with no coordination of efforts. Business/education partnerships are coordinated, for the most part, through the Volunteer Program. These partnerships are in the embryonic stages. The school system is initiating ventures of mutual interest to business and education through organizations such as the Anne Arundel County Trade Council and the Greater Annapolis Chamber of Commerce. Examples of the types of past cooperative efforts include service on advisory boards, councils, and committees; scholarships and donations to students; donations for and of supplies and equipment; business hosted field trips; provision of training sites for students; provision of meeting places and speakers; and donations for special interest programs.

RESEARCH

A review of the literature produced the following findings:

- As Federal funds for categorical programs decline and additional property tax revenues can no longer be anticipated, public school officials across the nation faced with tight school budgets are looking for private sources of money.
- Many school systems are forming private foundations to do fund raising for them. In California over 120 private foundations raise money for schools.
- Some school systems designate staff members to seek funding for school projects above and beyond the scope of local and state tax revenues.
- There is a perceived danger that school systems in wealthy areas will be able to raise far greater funds from private sources than will systems in poorer areas, thus negating the concept of equitable funding. So far, however, there have been no legal challenges to the private funding of public schools.
- Some foundations donate money directly to classroom teachers through a grant system, while others turn the money over to local school boards who decide how the money is to be spent.
- More school systems are establishing development offices for the purpose of securing monetary and other types of resources.
- Business/education partnerships are on the increase. The business leaders in Boston have pledged $5 million in corporate bonds in order to guarantee that every Boston public high school graduate who wants to go to college will not be hindered because of tuition costs.
- Schools and businesses have a different philosophical point of view and a different language which must be bridged.
- Business/education partnerships can be used to provide state-of-the-art training for tomorrow's workers, while providing students with invaluable real life experiences.
- Investing in schools will ultimately benefit business and industry in the form of a better educated and trained work force.

RECOMMENDATION

The cost of a quality education is rising and will continue to rise even more in the future, especially as systems compete to attract top level teachers, implement merit pay and career ladders, and acquire modern technologies. With costs rising and federal funds declining, there is a need for new and creative ways to raise money. There is also a mutual benefit to be derived from business/education partnerships, not only in terms of money and services, but also from the understanding and relationship that evolves when business leaders are involved in education on an ongoing basis. A strong education system and a strong economy go together. The raising of private funds and the development of a strong business/education partnership cannot be left to happenstance but needs the attention of a full time person.

It is recommended that:

AN OFFICE OF DEVELOPMENT BE ESTABLISHED

In order to implement the above recommendation, it is proposed that:

- Personnel be hired to devote full time to development efforts
- The position be high level and highly visible
- This office be attached directly to the superintendent's office
- All development efforts be coordinated through the development office including the securing of business/education partnerships

OUTCOMES

With adoption of this recommendation, the following outcomes are proposed:

- There will be an increase of money and services for the school system.
- There will be a better educated work force.
- There will be a better understanding and relationship between business and education.
- Both the educational system and the economy will be strengthened.

PROGRAM AREA: DRIVER EDUCATION

PRESENT STATUS

Driver education is offered in all county high schools. Of those eligible to take driver education, approximately 72% do so. About 65% take it as an elective semester course for one-half credit and the others take it as a six week non-credit summer course and pay a $55.00 fee. Because Maryland law requires 16- and 17-year-olds to successfully complete a state approved driver education course as a condition for licensing, it is assumed that most of the 28% of students not taking the school course, take driver education from a private agency.

The budget for 1985-86 was $824,089 and served approximately 4,000 students for a per-student cost of $206. The state reimburses the county $65 per student. School systems in Maryland are not required to offer this program, but may do so at their option. (Until 1979, the program was mandatory under state law.) The Maryland General Assembly is continuing to evaluate the cost effectiveness of the program. The law covering reimbursement has been extended to 1989.

The minimum state requirements are 30 hours of classroom instruction, 12 hours of simulation and three hours of behind-the-wheel driving. The full semester credit course in the county provides more than these minimum requirements. It includes 60 hours in the classroom, 12 hours of simulation and the normal three hours behind the wheel. Vehicles used for on-the-road instruction -- approximately 105 per year -- are loaned to the school system by local automobile dealerships. The curriculum for the course is The Proposed Curriculum Guide for Driver and Traffic Safety in Maryland.

Every senior high school is equipped with a simulation laboratory. With one exception, which accommodates 12, these facilities handle 16 students at a time. All teachers in the program hold certification in at least one subject other than driver education. There were 16.1 full time equivalent professional staff positions, including teachers, aides, and a coordinator assigned to the program in 1985-86. Paraprofessionals who have gone through state approved driver education training are used only for behind-the-wheel instruction. Staff development activities are usually handled on a direct individual basis by the program coordinator.

RESEARCH

A review of the literature produced the following findings:

- There is no data base to substantiate that those students who have participated in driver education programs are safer drivers or less safe drivers than those who have not participated in driver education programs.
- Data from the federal driver education study conducted in DeKalb County, Georgia, support conclusions that trained drivers have fewer driving while intoxicated arrests, have fewer violations, and are more likely to wear seat belts. However, they experience about the same number of accidents as untrained drivers.

RECOMMENDATION

Even though research has not shown conclusively that persons who take driver education are better and safer drivers than those who do not take such courses, it is felt that driver education provides a valuable service and a viable alternative to students so that they can gain the knowledge and skills necessary to obtain an initial driver's license.

It is recommended that:

> **THE DRIVER EDUCATION PROGRAM BE OFFERED AS A CREDIT AND AS A NON-CREDIT COURSE**

In order to implement the above recommendation, it is proposed that:

- The driver education credit course be counted towards the fulfillment of the practical arts graduation requirement
- Driver education be offered as a supplementary program after school and during the summer
- The arrangement with local car dealers to obtain vehicles be continued

- Ongoing evaluation to study the program's effectiveness be continued

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- All interested students will have the opportunity to complete a state approved course of driver education.
- There will be more drivers with the knowledge and skills necessary to be safe drivers.
- There will be fewer driving while intoxicated arrests.

PROGRAM AREA : DROWNPROOFING

PRESENT STATUS

The Drownproofing Program is a water safety program available on a limited basis to fifth grade students. "Drownproofing" is a term that is generally used to identify specific survival skills. These skills incorporate breath control and the body's ability to stay afloat without expending an enormous amount of energy through slow and controlled movements while in the water. The program, which also includes water safety skills, emphasizes skill development in personal safety and the safety of others.

The personal safety skills include survival swimming, floating, proper use of personal flotation devices (PFD), and the use of clothing as a means of survival. Safety of others includes non-swimming rescues that may be used in an aquatic emergency. Ice safety, hypothermia (dangerous lowering of the body's core temperature), and artificial respiration are also included in the Drownproofing Program. To achieve the development of these skills, each student receives four to five hours of classroom readiness and five, forty-five minute skill development sessions in the water. During the 1985-86 school year, 1,180 students participated in this program.

Responsibility for conducting the Drownproofing Program has been assumed by the Outdoor Education staff. The Outdoor Education Program has provided the staffing, materials, training of teachers and parent volunteers, procurement of facilities, and leadership necessary for the Drownproofing Program to grow.

The Drownproofing Program utilizes the pools at the two outdoor education facilities and seven community pools. With the exception of the Crofton Country Club pool, the pools are all outdoor facilities. The lack of sufficient indoor pools, coupled with the lack of a full time staff person, prevent many fifth grade students from participating in this program.

Water and boating safety activities have been and are currently popular activities that students in grades K through 12 have included as part of their Outdoor Education Program. Small craft safety is taught through the use of canoes and rowboats currently found at both outdoor education facilities. Three water safety lessons are available through a "mini-drownproofing" program in the spring to school groups as part of an overnight outdoor education program.

To meet the training needs of teachers in Aquatic Safety Education, two county workshops have been developed. A three credit Boating Safety Workshop has been recently developed and 93 teachers have completed it. This workshop trains and certifies teachers in lifesaving techniques and in teaching the drownproofing curriculum.

RESEARCH

A review of the literature produced the following findings:

- Nationally more than 102.2 million people go swimming and over 50 million boaters use the waterways each year.
- Nationally, in 1983, there were 7,555 reported deaths due to accidental drownings and water transportation accidents.
- The United States Coast Guard statistics show that nearly 90% of boating fatalities are the result of drowning.
- Nationally, water related fatalities are the second leading cause of accidental deaths up to age 44. Drowning is the third leading cause of accidental deaths when all age groups are considered.
- In 1984, there were 52 reported drownings in the state.
- In 1983-84, figures from the Maryland Natural Resources Police show that there were 31 deaths and 77 injuries reported from boating safety accidents in Maryland.
- Anne Arundel County has 419 miles of tidal shoreline available for aquatic activities. This is more than any other county in Maryland.
- Anne Arundel County consistently ranks number one or number two among the 24 subdivisions in Maryland for the largest number of annual drownings. During 1985-86, there were 8 drownings or water related deaths reported in Anne Arundel County.
- Anne Arundel County has the highest number of registered boats (25,989 in 1986) and boating accidents reported in the state.
- The major causes of drowning are the inability to swim and/or not wearing a personal flotation device (PFD), cold water, and abuse of alcohol or other drugs.
- The primary danger for the good swimmer in cold water (below 70) is hypothermia.
- The proportion of fatalities during the months when the water is cold is much higher than during the warm water months. The problem seems especially acute during the time of year when the air is warm and the water is still cold.
- Seventy-five percent of the people who die in boating accidents are not wearing a PFD.
- The Center for Disease Control says that as many as 65% of all drownings are alcohol related.

- Eighty-five percent of all drowning victims are males. Two-thirds of these people never intended to enter the water at all. They fell into the water from docks, piers, river banks, or swimming pool aprons, or as a result of a boating accident.
- The most common victims of water mishaps are children and young adults.
- The attempt made by an untrained rescuer to save another person in the water can result in a double drowning.
- Over eighty percent of all boating fatalities happen to persons in small boats, usually as a result of capsizing and falling overboard.

RECOMMENDATION

Students in the county have access to a great variety of aquatic environments: a backyard pool, creeks, rivers, the bay, and the ocean. As a result of this and because many do not possess water safety skills, drowning and water related accidents are high in this county.

It is recommended that:

> **THE DROWNPROOFING PROGRAM BE EXPANDED TO PROVIDE AQUATIC SAFETY EDUCATION FOR ALL STUDENTS, K-12**

In order to implement the above recommendation, it is proposed that:

- A comprehensive K-12 Water Safety curriculum be developed to include boating safety, advanced lifesaving, dangers of alcohol with aquatic related activities, and learn to swim programs
- Drownproofing be required for all fifth grade students
- Pool facilities be provided for each high school and made available for its feeder schools

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Fewer people will be drowning victims.
- Students will gain basic water safety skills necessary to save themselves or others during an aquatic emergency.
- Students will demonstrate swimming and boating skills.
- Students will recognize hazardous water and boating conditions.
- Students will be in better physical health.

PROGRAM AREA: EARLY CHILDHOOD
CONSIDERATION: PRESCHOOL EDUCATION

BACKGROUND

Beginning in September 1979, a state funded Extended Elementary Education Program (EEEP) was initiated at Tyler Heights Elementary School with 45 four-year-olds participating. Similar programs with 30 children enrolled in each began at Freetown Elementary School in January 1980 and Glendale Elementary School in March 1980.

The staffing ratio for each prekindergarten class in this experimental program was recommended to be one teacher and one aide per 15 students. In addition, a teacher specialist was assigned to each school.

The goals of EEEP were to develop continuity of curriculum, articulation, parenting and interagency cooperation. A well-balanced, interrelated, sequenced program focusing on developmental levels was developed and implemented. Greater opportunities to link preceding experiences and skills to the future strengths and needs of young children were provided. The parenting component developed a partnership between parents and staff and is designed to share the knowledge and skills essential to meet the needs of young children and their families. Articulation between primary teachers and aides focused on providing follow-up and assistance to students. In addition, the staff worked cooperatively with agencies such as the health department to ensure maximum services for young children and their families.

PRESENT STATUS

Prekindergarten

Currently there are 200 students attending prekindergarten in Anne Arundel County. These classes are housed at Tyler Heights, Freetown (includes Solley students), Glendale, and Van Bokkelen elementary schools. The schools were selected for participation in the program because of the large numbers of students who qualified for free lunch and aid to dependent children and who scored six or more months below grade level on the third grade California Achievement Test (C.A.T.) in reading and/or math.

Four of the schools (Van Bokkelen, Tyler Heights, and Freetown/Solley) service large percentages (between 30 and 49 percent) of economically deprived students as determined by the Chapter 1 eligibility data. A further consideration was the large number of "high risk" students as determined by Chapter 1 educational needs (15%) and the Maryland Observation Screening Checklist (MOSC) (10%). Most of the MOSC high risk students were also identified as high risk by Chapter 1; thus, the total high risk population is about 15% or 16%. A high risk student is defined as one who because of problems of development and/or experience is least able to make consistent progress in school unless the teaching learning experiences are modified.

Students are selected on a "first come, first served" basis. They must be four years old on or before December 31, live within the school attendance area, and have completed registration procedures including proof of immunization. There are currently five full time teachers, five full time aides and two teacher specialists employed. Salaries for teachers and aides are funded by the Maryland State Department of Education. The teacher specialist positions are funded through the county Early Childhood Program. A county approved prekindergarten curriculum has been developed and is being implemented in each of the centers. Prekindergarten is not a mandatory program.

Students attend sessions five days per week for a two and one-half hour period either in the morning or afternoon. Activities are designed to help children develop maximum potential, develop a sense of worth and become productive individuals in society. Instructional needs are met through a variety of interrelated learnings, while the social, emotional, and physical aspects are expanded through exploration and experimentation.

Kindergarten

Kindergarten programs are available to all children who wish to attend, providing they have reached the age of five by December 31. Among the 4,735 students in first grade classes for 1985-86, about 2% had not had a kindergarten experience. An estimated 10% of the five-year-old population had attended private or parochial schools. During the 1985-86 school year, there were eight requests for early admittance to first grade. Upon completion of the screening process, five children were selected for placement in first grade.

Curricula for all content areas include goals, objectives, and activities for kindergarten; reflect the interrelationship of various content areas; and identify instructional objectives related to a young child's development. Full time kindergarten teachers are responsible for the total program with two sessions of students. Teachers teach an integrated curriculum which includes language arts, math, social studies, science, music, physical education, art, health, and computer education. Kindergarten children spend two and one-half hours in school. The recommended ratio for kindergarten programs is one teacher per 22 students per session. Early screening for the identification of "high risk" students is mandated by the state. The screening procedures along with other related responsibilities are all a part of the teaching task.

The Early Childhood Staff Development Center, located in the Richard Henry Lee Elementary School, was established in 1976 using Maryland State Department of Education Title IV, Elementary and Secondary Education Act Funds. The original staff consisted of one lead teacher, three staff teachers, one parent educator, one speech and language clinician, two instructional aides and a full time secretary.

When the county began funding the project in 1982, the staff was reduced to two teacher positions and a .5 speech and language clinician. Since then staffing has remained stable. This staff provides direct service to personnel including classroom, reading, resource, and speech teachers; instructional aides; and administrators. Staff members assist with a wide variety of inservice and workshop activities for professional growth; host visits for teachers during evening hours; and serve on various committees such as Materials of Instruction, Gifted and Talented, Personal Safety, and Mathematics. Due to time constraints, scheduling requests from teachers for enrichment and professional growth have not received high priority.

Since 1976, the Maryland State Department of Education has required early screening and continuous assessment for potential learning problems. The major purpose of the early identification program is the recognition of children's needs so that appropriate educational programs can be planned to meet these needs. All kindergarten, first, second, and third grade teachers; principals; reading teachers; and speech therapists have been trained to administer the following screening instruments:

- Parent Interview/Checklist
- Maryland Observation Screening Checklist (MOSC)

- Early Identification and Intervention Program (EIIP)

- Early Childhood Language and Speech Inventory

Federal funds (ECIA Chapter 1) provide supplemental support to schools through the services of reading and math resource teachers and instructional aides. Chapter 1 services are available to identified students only.

First/Second Grade

Based on state compulsory attendance requirements, first and second grade classes are established in every elementary school for a six hour day. The recommended ratio for staffing at the primary level is one teacher per 25 students. During the 1985-86 school year, 9,133 students were enrolled in classes in these two grade levels. Additional support services are provided by Chapter 1 in 27 identified schools. Teachers from Chapter I schools participate in staff development and inservice activities provided by the Early Childhood Staff Development Center as well as in the programs provided by Chapter 1.

Responsibilities of the primary teacher include instruction in language arts, math, social studies, science, and computer education. Primary students receive 60 minutes of instruction per week in each of the cultural arts areas (art, music, and physical education) by cultural arts teachers. In addition students receive another 30 minutes per week of instruction in library services.

Although a well defined curriculum exists, there are students enrolled who lack the prerequisite experiences to succeed in the traditional primary program. During the 1985-86 school year, 267 students in grade one and 52 students in grade two were retained for instructional purposes.

RESEARCH

A review of the literature produced the following findings:

- There is a high positive correlation between structured early childhood programs and later pupil achievement.

- The effects of pre-school education are both positive and long lasting.

- A major portion of the physical, emotional, and cognitive growth of a child occurs before entry into grade one.

- Ninety-five percent of all school age children exhibit evidence of health problems such as tooth decay, chronic ear infection, vision and hearing problems, language disorders, and communicable diseases. Because of a lack of community awareness and increasing medical cost, many of these problems are not corrected before these children enter school.

- Children who receive pre-school education are more likely to have positive self-concepts than their peers who do not participate in such programs.

- Early education can result in savings in both human and financial terms.

- Children from economically disadvantaged homes fail in school more often than their more advantaged peers.

- Early intervention programs, initiated as a result of early identification, have proven to be cost effective in cost reduction for special education services, welfare services, and the criminal justice system.

- Children who have received pre-school education score higher on I.Q. and achievement tests are more likely to be working on grade level, and less apt to be enrolled in special education programs than those students who were not in pre-school programs.

- To be effective, pre-school education should:

  - offer planned and structured programs

  - directly involve the parents

  - provide continuity and articulation into the elementary grades

- The increasing number of working mothers and the swiftly changing patterns of parent-child relationships lend evidence of the necessity to provide pre-school experiences where parents and teachers can work together to supplement and complement each other.

- Children of high income families are more likely to be enrolled in private education programs.

- While the number of four-year-olds enrolled in early childhood programs is increasing, very few programs are publicly supported.

- The extra time gained in a full-day kindergarten program provides a greater opportunity for learning and development at a crucial time in a child's life.

- All-day kindergarten programs allow children to be an integral part of the total school's educational program.

- According to a Maryland State Department of Education report in January 1979, all six pilot, full-day kindergarten programs reported greater gains and achievement for full-day students compared to half-day kindergarten students. The percentage of kindergarten students in full-day programs has increased nationally from 20% in 1973 to 33% in 1985.

- Since 1970 pre-primary enrollment increased by 33% and is expected to increase an additional 25% by 1993.

- Society as a whole and specifically the American family unit will continue to undergo changes which will have an influence on early childhood programs.

RECOMMENDATION

Research reveals that the early childhood years are crucial for physical, emotional, and cognitive growth, and are the most effective years for identifying and correcting learning difficulties and building upon strengths. Though the child of the future will be sophisticated in the use and knowledge of technology, educators cannot overlook the students' need for those basic skills which will ensure success in school. Therefore, early childhood programs need to reflect both the new technology and developmental philosophy.

It is recommended that:

> **PREKINDERGARTEN PROGRAMS BE AVAILABLE FOR ALL FOUR-YEAR-OLDS ON A HALF-DAY BASIS**
>
> **CURRENT HALF-DAY KINDERGARTEN PROGRAM BE EXTENDED TO A FULL-DAY PROGRAM**

In order to implement the above recommendations, it is proposed that:

- The county curriculum be revised to include prekindergarten objectives and to reflect a continuum of skill development through the primary grades
- The individual needs of children be provided for by planning to cluster early childhood classrooms (prekindergarten - second) to allow for the free flow of students, staff and materials
- A strong parenting component to coordinate the efforts of both home and school be implemented
- The existing early childhood staff be expanded within each building for grades prekindergarten through grade two to include the following: teachers, intern/apprentice teachers, a speech and language clinician, a health professional, paraprofessionals, and parents. This team should be coordinated by a master teacher. The recommended class size for early childhood classes should be 15 in prekindergarten, 22 in kindergarten and 22 in first and second grades.
- Staff development be provided to train personnel in the various principles of child development, the use of curriculum materials, early identification procedures, management and organizational techniques, articulation, diagnosis, and the evaluation of individual needs
- Professional planning days be built into the school calendar to allow teams time for long range planning, articulation between grade levels, and discussion of other school related concerns
- Consultative and teaching time be provided for early childhood teachers with special subject area teachers and other resource personnel in their building
- Full-day, kindergarten students be scheduled to receive direct instruction in special areas
- Cooperative efforts be established with the Office of Staff Development and institutions of higher education to revise and clarify programs, and to prepare staff to implement early childhood education programs
- An effective parent component be developed that provides educators, school related professionals, parents, and children with strategies and materials to enrich relationships, develop inter-racial and inter-ethnic harmony, and increase appreciation of the experiences that will enhance success for all children

- The existing cooperative interaction with community agencies (health, social services, etc.) and private services (dentists, doctors, etc.) which have an impact upon young children and their families be enhanced

OUTCOMES

With adoption of these recommendations, the following outcomes are projected:

- Students will demonstrate more positive self concepts.
- There will be an increase in the number of students working on or above grade level.
- There will be a decrease in the number of students repeating a grade level.
- There will be a decrease in the number of students performing below grade level on standardized achievement tests.
- There will be improved health care for students.
- Parents will become more actively involved at an earlier time with the total education of their children.
- There will be more cooperation among private and public agencies which have an impact upon the school age population.
- There will be a decrease in the number and intensity of special education services.
- Students will adjust to and be more successful in school.

CONSIDERATION: ELEMENTARY SCHOOL AGE DAY CARE

PRESENT STATUS

There are three prototype elementary school age day care programs in operation. These centers are located at Linthicum, Park, and Belvedere Elementary Schools. The program at Linthicum runs from 7:00 to 8:40 a.m. and from 3:00 to 6:00 p.m. The Park and Belvedere programs are after school only; beginning immediately after school and running until 5:30 p.m.

Although these programs are housed in public facilities and are under the supervision of the principal, they are financially self supporting through fees paid by parents, are governed by a parent advisory committee, and maintain their own staff.

A comprehensive program guide has been developed by the school system. This guide indicates objectives, suggested activities, materials and equipment needed to implement a school age day care program.

An interesting aspect of these programs has been the cooperative effort between the school age day care center, the public schools, and other local community agencies such as the YWCA, Girl Scouts, police and fire departments. Also, senior high students may earn a 1/2 credit of independent study for 60 hours of volunteer service.

It is estimated that there are approximately 15,000 primary age students who could benefit from a school age day care program. The need for a supervised environment with a balance of structured and unstructured activities has been documented through current research. The increasing number of single parent homes and of mothers in the work force, as well as the erosion of the nuclear family has increased the pressure upon the schools to provide a program to accommodate this need.

RESEARCH

A review of the literature produced the following findings:

- There is an increase in the number of school age children who are routinely left alone to care for themselves during a portion of the day.
- In 1984, 64% of the mothers in Anne Arundel County who had children of school age were in the labor force.
- In 1980, 16% of the school age children in Anne Arundel County lived in single parent situations.
- The support system traditionally provided by the extended family continues to erode.
- Parents look to the school as a trusted child care provider.
- Children left to care for themselves often feel afraid and lonely regardless of their age, capabilities or parental assurances.
- A home devoid of people inhibits the development of social interaction.
- The increasing incidence of child abuse causes parents to fear for the safety of their children.
- Parents exhibit anxiety and guilt over leaving children unattended.
- The lack of adequate care has resulted in an increase in delinquency, vandalism, academic failure, drug and alcohol abuse, overexposure to TV, inadequate nutrition, and household and automotive accidents.

RECOMMENDATION

There is little doubt that research has indicated that large numbers of children would benefit from a school age day care program. Traditionally this type of program has been seen as outside the realm of education; however, the social responsibilities thrust upon the school by today's society make it appropropriate for public schools to assume the role of a catalyst in solving this very serious social dilemma.

It is recommended that:

> **DAY CARE PROGRAMS BE AVAILABLE FOR ALL ELEMENTARY SCHOOL AGE CHILDREN**

In order to implement the above recommendation it is proposed that:

- Parents become actively involved in establishing, governing and maintaining adequate school age day care centers
- Interagency and private sector cooperation and financial commitment be provided
- School buildings be made available as elementary school day care facilities because of the lower cost involved and because the school is a psychologically and socially sound environment for children
- Program guidelines be developed for supervision, staffing, program content, and maintenance of the facility
- School based committees be formed to determine the type of program and resources needed for their communities

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- There would be fewer school age children routinely left alone to care for themselves during a portion of the day.
- There would be greater cooperative effort among school, home, community, and private sector to provide financial support for the after school day care programs.
- There would be a decrease in delinquency, vandalism, academic failure, drug and alcohol abuse, overexposure to TV, inadequate nutrition, and household and automotive accidents.
- There would be a decease in the number of child abuse incidents.
- Success in school would be enhanced.

PROGRAM AREA: EDUCATIONALLY DISADVANTAGED

PRESENT STATUS

The federal and state governments through the Education Consolidation Improvement Act (ECIA) Chapter 1, a Federally funded program, and through state compensatory education programs supply funds which enable the school system to provide services to a portion of the educationally disadvantaged population. The guidelines by which these programs must be administered limit the enrollment, scope, and manner in which these monies can be expended. The federal and state programs must supplement and not supplant the local education agency's efforts in reading and/or mathematics. Presently 31 elementary and 11 secondary schools meet the economic criteria of a high concentration of enrollment from low-income families for participation in the Chapter 1 program. Allocations allow 22 elementary schools to receive services through Chapter 1 funds. Four elementary and four middle/junior high schools receive similar services through state compensatory funds. During the 1985-86 school year, a total of 2,737 students received services through these two programs. The funds over the past three years have not been sufficient to provide the services to all qualifying schools. Recent demographic predictions indicate an increase in the percentage of the economically disadvantaged population.

Chapter 1 is presently in the process of reauthorization. Legislative proposals indicate an interest in restructuring the allocation of Chapter 1 funds in the form of vouchers to the parents of qualifying students rather than grants to local school systems.

There is not presently a program which addresses specifically the educationally disadvantaged student beyond Chapter 1 or state compensatory programs.

RESEARCH

A review of the literature produced the following findings:

- The disadvantaged are less prepared than their more advantaged colleagues at school entry, thereby creating a gap in achievement which widens as schooling progresses.
- Pupil acquisition of basic skills depends more heavily on the nature of the school than on the character of the home.
- A lack of knowledge on the part of educators of how best to meet the educational needs of the disadvantaged student, coupled with ineffective leadership, has contributed to the poor academic performance of this group. Two additional reasons cited for poor academic performance are low expectations based on preconceived assumptions and a lack of emphasis placed on education in the home.
- Biased testing instruments have been cited as a reason for poor academic performance on tests.
- By the time a disadvantaged child starts school at age five or six, the deficit is difficult to overcome.
- Studies on the effectiveness of federal compensatory programs have shown mixed results.
- The probability of dropping out before graduation rises considerably for all racial groups when a student comes from a socioeconomically disadvantaged background.
- Current minimum competency tests may bar many disadvantaged students from gaining a high school diploma.

RECOMMENDATION

If not specifically compensated for, educationally disadvantaged students tend to drop out of school at a higher than average rate. In addition to not obtaining a high school diploma, a minimum requirement for most jobs today, dropouts seldom possess the skills necessary for sustained employment. These people and their families all too often become a burden on society. Therefore, the school must address the needs of the educationally disadvantaged.

It is recommended that:

> **PROGRAMS BE DESIGNED TO PROVIDE EQUAL EDUCATIONAL OPPORTUNITY FOR CULTURALLY AND ECONOMICALLY DISADVANTAGED STUDENTS IN ORDER TO ENSURE THAT THEY MEET WITH ACADEMIC SUCCESS**

In order to implement the above recommendation, it is proposed that:

- A greater number of preschool and after school tutoring programs be established
- The Learning Center program be expanded to include grades 4-12 and be extended beyond the one year enrollment limit
- Alternative educational programs be provided for teenage parents and their children
- Basic vocational education programs be provided for those students who do not qualify for vocational technical centers
- More follow-up on truancy cases be provided
- Tests be revised to assure that cultural bias does not exist
- Additional alternatives for suspension and expulsion be provided
- Flexible staff hours in schools be provided to allow parents the opportunity to take advantage of school services without loss of pay
- Special assistance be provided for those students working below grade level
- Strategies be implemented to meet the special needs of educationally disadvantaged students
- Staffing and allocation of resources be on a needs basis rather than on a numerical basis
- Assessment guidelines be refined to identify the disadvantaged student population
- Staff development be held to increase awareness of the educational needs of disadvantaged youth

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The educational gap between advantaged and disadvantaged students will be narrowed.
- All students will have a greater opportunity to achieve a better quality of life.
- The percentage of students who will become dependent upon government assistance will decrease.

PROGRAM AREA: ENGLISH LANGUAGE ARTS

BACKGROUND

Responsibility for the K-12 English Language Arts Program is shared by two offices, the Reading Office and the English Office, each of which is headed by a coordinator.

During 1985-86, there were 42.5 county funded elementary reading positions and 18.2 federally funded Chapter 1 reading positions. Three middle schools have county funded remedial reading teachers. Four central administration people, the coordinator of reading, plus three resource teachers make up the reading support team.

In the primary grades 450 minutes per week are alloted to reading while in the intermediate grades the figure is 300 minutes. Reading teachers meet daily or every other day at the middle school level primarily with students who are in jeopardy of not passing the Maryland Functional Reading Test. After being selected, these students take reading in lieu of one elective.

All elementary teachers are qualified to teach language arts and there are no special language arts teachers as such. During 1985-86, there were 240 secondary English language arts teachers. In the elementary schools which specialize or departmentalize, a portion of the teachers are designated as language arts instructors and teach multiple classes in this area. In the primary grades, 290 minutes per week are alloted for handwriting, written composition, spelling, and literature. This figure rises to 300 minutes in the intermediate grades. Time alloted to language arts in the middle/junior high school is one period per day.

Four credits of English language arts are required for graduation. All students take the year long English 9 course during their freshman year. Each year after grade nine, students complete a semester course in oral or written communication and a semester course in reading and literature. There are a total of 20 core courses from which to choose to satisfy the four-credit graduation requirement. Another 16 approved elective courses can be taken in addition to these required courses.

During the 1982-83 school year, a comprehensive evaluation of the secondary English language arts program was conducted by the Office of Research. While many strengths in the secondary English program were identified during this evaluation, several program needs were also cited. A team of outside consultants urged "that immediate, full-scale revision of the writing curriculum occur with a view toward implementing the process approach to writing found successful by recent research." These consultants also recommended that a clear sequence of skills and content be established beyond grade 9, that a focus on reader response to literature be established as curriculum materials are revised, that language study encompass more than just grammar, that an emphasis on writing instruction be increased across the entire school curriculum, and that word processors be utilized in conjunction with composition instruction in all grades.

One response by staff to the outcomes of this program evaluation was the formulation and consequent Board approval of 27 recommendations for improving the secondary English program. Among the actions taken to implement some of the key recommendations were the following:

- Funds have been provided for publishing student writing via school newspapers and literary magazines.

- the fragmented approach to language arts taken by textbook companies
- the lack of awareness and use of the existing curriculum guide for speaking and listening
- models and programs for providing integrated instruction which are still in the developmental stage and which need additional refinement
- the lack of systemwide dissemination because activities and models which have been developed are communicated only to those schools who have requested such information
- normal psychological resistance to change
- limitation to the number of teachers and schools inserviced

RESEARCH

A review of the literature produced the following findings:

- Communication should be seen as a dynamic complex of inter-dependent systems involving different "mixes" of thinking, speaking, listening, reading, writing, viewing, and feeling.
- Listening and speaking skills are teachable and learnable. Objectives, activities, and assessment devices are available.
- Although many elementary language arts textbooks advocate integration, they contain separate chapters on reading, writing, speaking, and listening. The integration of language arts peaks in kindergarten and declines as grade level increases. By the time the child reaches secondary school, language arts instruction is neatly fragmented into separate courses.
- The integration of writing and reading instruction produces significant gains in reading.
- Integrating reading, writing, listening, and speaking represents an efficient and more natural approach to instruction than isolating the components of the communication process.
- The auditory channel accounts for approximately 11% of what individuals have learned, yet several studies have indicated that teachers talk between [illegible]0-60% of the time spent with their students. Hence, teachers are attempting to transmit large volumes of information to students through a channel that is not usually used by students to gain information. The problem is exacerbated by not providing training in listening.

RECOMMENDATION

Students have two dominant avenues to receive information: reading and listening. Their two dominant methods of expressing information are writing and speaking. School systems have created systematic continuous instructional models for only reading and writing. This attention to half of the four major communication skills has resulted in greater weaknesses in listening and speaking than in reading and writing. In addition,

- the fragmented approach to language arts taken by textbook companies
- the lack of awareness and use of the existing curriculum guide for speaking and listening
- models and programs for providing integrated instruction which are still in the developmental stage and which need additional refinement
- the lack of systemwide dissemination because activities and models which have been developed are communicated only to those schools who have requested such information
- normal psychological resistance to change
- limitation to the number of teachers and schools inserviced

RESEARCH

A review of the literature produced the following findings:

- Communication should be seen as a dynamic complex of inter-dependent systems involving different "mixes" of thinking, speaking, listening, reading, writing, viewing, and feeling.
- Listening and speaking skills are teachable and learnable. Objectives, activities, and assessment devices are available.
- Although many elementary language arts textbooks advocate integration, they contain separate chapters on reading, writing, speaking, and listening. The integration of language arts peaks in kindergarten and declines as grade level increases. By the time the child reaches secondary school, language arts instruction is neatly fragmented into separate courses.
- The integration of writing and reading instruction produces significant gains in reading.
- Integrating reading, writing, listening, and speaking represents an efficient and more natural approach to instruction than isolating the components of the communication process.
- The auditory channel accounts for approximately 11% of what individuals have learned, yet several studies have indicated that teachers talk between [illegible]0-60% of the time spent with their students. Hence, teachers are attempting to transmit large volumes of information to students through a channel that is not usually used by students to gain information. The problem is exacerbated by not providing training in listening.

RECOMMENDATION

Students have two dominant avenues to receive information: reading and listening. Their two dominant methods of expressing information are writing and speaking. School systems have created systematic continuous instructional models for only reading and writing. This attention to half of the four major communication skills has resulted in greater weaknesses in listening and speaking than in reading and writing. In addition, reports from researchers and practitioners provide convincing evidence that not only should all of the communication skills of reading, writing, listening, and speaking be taught but that this teaching should occur in an integrated fashion. This integration should occur in both language arts and content areas.

It is recommended that:

> **INTEGRATED INSTRUCTION IN READING, WRITING, LISTENING, AND SPEAKING BE PROVIDED IN LANGUAGE ARTS AND REINFORCED IN THE CONTENT AREAS**

In order to implement the above recommendation, it is proposed that:

- The curriculum in reading, writing, listening, and speaking be modified to ensure that all students are provided with systematic, integrated developmental instruction at all grade levels
- Models be created and implemented that provide integrated language arts instruction
- Ongoing inservice be provided in order to explain new curricula and to provide training in models of integrated instruction
- Related program components be aligned to reinforce an integrated approach. These components would include pre-service training, MOI selection criteria, grouping, and scheduling decisions

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will demonstrate proficient skills in reading, writing, listening, and speaking.
- Teachers will effectively teach communication skills in an integrated manner.
- Students will acquire content and skills more effectively.

CONSIDERATION: WRITING ACROSS THE CURRICULUM

PRESENT STATUS

A growing awareness of the intimate relationship between writing and thinking has increased interest in the significance of language as the medium of instruction. Teachers in all subject areas have begun to regard writing-to-learn activities as effective means for increasing pupil involvement and achievement. Such activities might include written summaries at the end of a class period or short written activities designed to clarify students' thinking. These writing-to-learn activities help to increase the level of cognition and critical thinking skills. Despite this increased awareness of the relationship between writing and thinking, most content area teachers still think only in terms of essay test questions and library research questions when planning opportunities for students to write.

Currently then, while all teachers are encouraged to include writing activities in their instruction, staff development to help teachers outside of the English Language Arts develop skills and strategies for writing in specific content areas has been somewhat limited and scattered. Training sessions have, for the most part, been confined to single meetings with school faculties or individual departments and have been scheduled only at the request of the schools. A guide developed and distributed by the English department provides suggested activities for writing in content areas but is now somewhat dated and applicable only to grades 5-9.

RESEARCH

A review of the literature produced the following findings:

- There is a lack of reinforcement of writing skills by teachers outside the English Language Arts Department.
- The major responsibility for writing instruction belongs to the English Language Arts Department, but other faculty members need to reinforce the skills developed in the English Language Arts Program.
- Teachers of all subject areas need to promote their students' communication skills.
- Teachers of English language arts can provide services and programs to assist other subject area teachers in the teaching of writing.
- Writing serves both public and personal needs of students and it deserves the cooperative and continuing effort of all teachers.
- To be effective, a basic skills writing program requires writing in all areas of the curriculum and provides teachers with the training to integrate writing in their subject areas.
- Pupil achievement and content mastery increase when writing-to-learn activities are a regular part of instruction.

RECOMMENDATION

Effective writing skills are developed only when students are given many opportunities to practice over a long time span. While all content areas require students to use writing skills, in many cases this "writing" is restricted to objective type exercises which require students to write no more than single words or short phrases. Generating whole discourse (i.e. a continuous series of related sentences) is not a regular activity in most content area classrooms. Writing-to-learn activities allow any teacher to remain a content specialist and yet have students writing regularly. Nevertheless, a primary concern of teachers outside of the English Language Arts Program is that they feel they do not know how to teach writing. If all content teachers are to be aware of good writing skills and feel secure about helping students develop these skills, the school system must continue to provide appropriate inservice.

It is recommended that:

AN EMPHASIS BE PLACED ON WRITING-TO-LEARN ACTIVITIES IN ALL CONTENT AREAS

In order to implement the above recommendation, it is proposed that:

- An ongoing inservice program be implemented in order to help teachers use writing as a learning vehicle, as well as a means for measuring learning that has already occurred
- Teaching strategies based on the understandings teachers acquire in the aforementioned inservice programs be developed and implemented
- A guide of suggested writing activities for content area teachers be developed
- Staff development be implemented within and across content areas to develop strategies for improving students' writing skills
- As curriculum is being developed or revised, special writing assignments correlated with skills and abilities identified in the English language arts scope and sequence be included in all content areas
- Teachers be more aware of what constitutes "good writing" and place greater insistence on the exhibition of these qualities in student work

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will generate whole discourse more frequently than is now the case.
- Pupil achievement on standardized measures of writing ability will indicate improvement.
- Pupil achievement on teacher-made tests will reflect greater mastery of content.
- Students will be better writers

CONSIDERATION: COMPUTER ASSISTED INSTRUCTION

PRESENT STATUS

The impact of the computer on all aspects of contemporary life continues to grow. In the near future, home computers will be as commonplace as television sets. Already many colleges have established computer literacy requirements for graduation and, in some cases, even for admission.

The impact of the computer on the English language arts is no less than in other areas. Word processing, especially, is revolutionizing the way most writers deal with the composing process. Currently, the only county developed curriculum designed to teach word processing skills is a two-week unit for grade seven. Students who happen to have an English teacher with an interest in computers or students who happen to attend a school with sufficient hardware are becoming computer literate in English at a faster rate than their counterparts in other schools. The school system has no master plan for incorporating word processing labs and skills into the English program.

RESEARCH

A review of the literature produced the following findings:

- Word processors facilitate student exploration of the options for positioning ideas within sentences and paragraphs because of the ease with which words and sentences can be moved.
- Word processing simplifies the most crucial and complex stage of the writing process, revision, because it eliminates the need for students to recopy laboriously whole paragraphs or passages.
- Programs which edit and correct text allow students to concentrate on higher level cognitive skills sooner and more frequently.
- Student writers seem to develop a more positive attitude towards writing and to write more prolifically when they use word processors.
- Word processors do not eliminate the need for composition instruction; students must know specific prewriting and revision strategies before they can create or direct a computer to improve text.
- Young learners at the preprimer level can "write" sooner than was heretofore believed because their use of a computer keyboard overcomes their inability to hold and use a pencil; the impetus "to create meaning" is just as basic in humans as the desire to understand someone else's meaning.
- Students who write before they read, even with "invented" writing systems, learn to read faster and tend to regard both reading and writing as satisfying activities; language arts skills are mutually reinforcing.

RECOMMENDATION

Because of the positive changes in pupil attitude towards and achievement in written composition when word processing equipment is available for writing activities, it seems imperative that our schools make available to students the technology and hardware that will enable them to master writing skills earlier and more quickly than they can now. Because of the greater individualization that programmed materials allow, English teachers should have access to computer labs so their classes can benefit from frequent opportunities to use instructional software and word processing programs. And finally, because of the impressive results of such early childhood ventures as IBM's "Write to Read" program, computers for use in conjunction with beginning reading instruction need to be available to kindergarten and first grade teachers.

It is recommended that:

> **COMPUTERS BE USED IN THE ENGLISH LANGUAGE ARTS PROGRAM WITH SPECIAL EMPHASIS ON INSTRUCTION IN COMPOSITION AND BEGINNING READING**

In order to implement the above recommendation, it is proposed that:

- Workshops be developed which are designed to help elementary and secondary teachers utilize computers in conjunction with English language arts skills and content

- Computer-related curriculum materials be developed for use and implemented in both the elementary and secondary English Language Arts Programs
- Computer labs be established within the English Language Arts department of each secondary school for the exclusive use of the English language arts teachers
- Software be acquired which is related to the goals of the English Language Arts Program
- Summer workshops be held for curriculum development related to the use of computers in the English language arts classroom
- The writing process continue to be studied and strategies to teach writing be refined by elementary and secondary teachers
- Awareness and application of the writing-reading connection be increased, especially on the part of primary teachers

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Mastery of basic reading and writing skills will be achieved earlier by all students.
- Staff expertise in teaching reading and written composition will be increased.
- Student attitudes towards reading and writing, especially the revision stage of the composing process, will be improved.
- Greater individualization of instruction in both reading and written composition will be achieved.
- There will be application of "writing-to-read" principles throughout the elementary English program.
- Students will be better readers and writers.

PROGRAM AREA: FINANCIAL SERVICES

PRESENT STATUS

The Department of Financial Services is headed by a director and is divided into four divisions :

- Purchasing and Property Control
- Fiscal Matters
- Budget
- Auditing

The Division of Purchasing is headed by a purchasing and property control officer with a lead buyer, a senior buyer, a senior property control assistant, and a warehouse foreman. Purchasing is responsible for all of the school system's bidding and purchasing. Property control is responsible for the inventory of all equipment. The McGuckian Street warehouse, which is rented for an annual fee of $50,000 ($4.00 per ft.), is used specifically by the Division of Purchasing. In addition, parts of facilities located throughout the county are utilized as warehouses.

The Division of Fiscal Matters is headed by a fiscal officer with two lead accountants and five senior staff accountants. Fiscal Matters is responsible for all transactions regarding the operating fund, construction fund, food services, payroll liabilities, trust and agency funds, insurance/risk management, and payroll operations and supervision. The division is in the process of moving from batch processing and manual handling of transactions to on-line processing and the increased use of computerization. The division has six PCs with word processing capabilities.

The Budget Division is headed by a budget officer with a lead budget analyst and a senior budget analyst. This division is responsible for the preparation of budget documents, the management of the proposed budget through the numerous budgetary stages, and the execution of the approved budget. The final reconciliation among available resources and selected program plans is a major budgetary function. Additionally, selection of the most feasible program plans is largely accomplished during the budgeting process.

The Division of Auditing is headed by the auditing officer with two senior auditors and two technicians. Internal auditing is the independent appraisal activity within the school system for the review of operations as a service to management. It is a managerial control which functions by measuring and evaluating the effectiveness of other controls. A sampling process is used with further review subject to the findings in the sample. The objective of internal auditing is to assist, where possible, all levels of management in the effective discharge of their responsibilities by furnishing them with analyses, appraisals, recommendations, and pertinent comments concerning the activities reviewed. Internal auditors are concerned with any phase of business activity in which they may be of service to management. This involves going beyond the accounting and financial records to obtain a full understanding of the operations under review. The attainment of this overall objective involves such activities as 1) reviewing and appraising the soundness, adequacy, and application of accounting, financial, and other operating controls, and promoting effective control at a reasonable cost; 2) ascertaining the extent of compliance with established policies, plans, procedures, and law; 3) ascertaining the extent to which Board assets are accounted for and safeguarded from losses of all kinds; and 4) in selected areas, appraising the quality of performance in carrying out assigned responsibilities.

The internal auditor's responsibility is to inform and advise management and to coordinate internal audit activities so as to best achieve the audit objectives and the objectives of the organization. In performing their functions, internal auditors have no direct responsibilities for, nor authority over, any of the activities reviewed. Therefore, the internal audit review and appraisal does not relieve others in the organization of the responsibilities assigned to them.

Internal auditing works closely with external auditing. External auditors are selected through the bid process. The purpose of external auditing is to determine whether the school system is working as it should be working and to determine whether financial statements are correct.

RESEARCH

The research in all four divisions of financial services is very similar and, therefore, will be handled together. However, the recommendations and outcomes for each of the four divisions will be presented separately.

A review of the literature produced the following findings:

- All areas pertaining to financial services should be utilizing state-of-the art technology in all transactions.
- Financial software packages are coming on the market at a rapid rate.
- Individual work stations are being equipped with terminals or micro computers which are on-line with mainframes.
- Individual schools are obtaining micro computers which are on-line with mainframes in central administration offices.
- The budgeting, purchasing, and accounting processes will become one continuous flow rather than the "stop start" procedures now in place.
- Financial service divisions will become more efficient, provide more usable information to decision makers, handle transactions more expeditiously, and effect savings in dollars, personnel, and time.
- Safeguards should be built into all technological systems.

CONSIDERATION: PURCHASING AND PROPERTY CONTROL

RECOMMENDATION

Increased demands for accountability, efficiency, and cost effectiveness will require a move from multiple warehouses to a centralized facility coupled with the utilization of technology in the inventory and purchasing processes.

It is recommended that:

> **A MODERN CENTRALLY LOCATED WAREHOUSE BE BUILT AND THAT UP-TO-DATE TECHNOLOGY BE USED IN THE INVENTORY, ACCOUNTING, PURCHASING, AND DELIVERY PROCESSES**

In order to implement the above recommendation, it is proposed that:

- Supplies be warehoused by the school system in order to improve effectiveness and efficiency
- A merged computerized purchasing system and an inventory system be implemented with each school site on-line with the central warehouse and the board's mainframe
- Vendor files be on-line

- Property control be computerized and merged with the purchasing system
- Approval signatures only be required under certain conditions
- The division be reorganized to meet the requirements of the merged computerized systems

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The number of people willing to do business with the system will increase.
- School administrators will have more autonomy when purchasing for their buildings but will still be held accountable.
- Deliveries to all cost centers will be timely and efficient.
- The use of funds will be cost effective.
- Paperwork will be reduced.

CONSIDERATION: FISCAL MATTERS

RECOMMENDATION

The demand for financial information and financial resources will greatly increase in the coming years. This will result in an increase in the volume of financial transactions. In order for the system to handle fiscal matters in an expeditious, efficient, and cost effective manner, greater use of technology will be required. Also, it is important for the system to take steps to decrease its potential liabilities.

It is recommended that:

> **STATE-OF-THE-ART TECHNOLOGY BE USED TO EXPEDITE THE HANDLING AND TO INCREASE THE EFFICIENCY OF ALL FINANCIAL TRANSACTIONS**
>
> **THE CONCEPT OF RISK MANAGEMENT BE ADOPTED AND IMPLEMENTED**

In order to implement the above recommendations, it is proposed that:

- On-line data processing terminals be provided as needed
- Downloading capabilities from the mainframe to micro computers be implemented
- Reports be printed via terminal or micro computer at work sites as needed
- An office be established that would devote full time to risk management issues

OUTCOMES

With adoption of these recommendations, the following outcomes are projected:

- Procedures such as checks processed by typewriters and manual expenditure corrections between accounts will be eliminated.
- Analytical capabilities in terms of volume, complexity, and timeliness will increase.
- Storage space requirements will be reduced.
- Financial transactions will be handled in a cost effective and efficient manner.
- Paperwork will be reduced.
- Liability cases will be reduced.

CONSIDERATION: BUDGETING

RECOMMENDATION

As changes occur and greater demands are placed on the school system, the function of final reconciliations among available resources and selected program plans will require the budgeting process to be increasingly involved in program selection and evaluation.

It is recommended that:

> **AN EFFECTIVE, EFFICIENT, FLEXIBLE BUDGET PROCESS BE ADOPTED THAT IS RESPONSIVE TO THE SYSTEM'S CHANGING NEEDS AND THAT PROVIDES A MECHANISM FOR THE CONTINUOUS REVIEW OF THE STATUS OF FUNDS**

In order to implement the above recommendation, it is proposed that:

- A system that allows flexibility while maintaining accountability be implemented
- Programs be periodically reviewed to determine need
- The budget request system be on-line
- Expenditure projections be computer generated
- Request format be standardized and provide information regarding current budgeted levels
- Budget presentations be computerized and readily accessible to all interested parties for analysis
- The position control system be refined

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Program changes will occur in a timely fashion.
- Programs which are no longer viable will be eliminated.

- Staff level communication will be enhanced.
- Budget priorities will be more easily determined.
- There will be greater access to and greater understanding of the budget process by all interested parties.
- The time devoted to monitoring and projecting expenses will be reduced.

CONSIDERATION: AUDITING

RECOMMENDATION

As the use of computers and other technology increases in each of the financial services areas, it will become imperative for the auditing division to keep pace and move away from the traditional paper trail auditing.

It is recommended that:

THE INTERNAL AUDITING PROCESS BE COMPUTERIZED

In order to implement the above recommendation, it is proposed that:

- Every school be equipped with a micro computer and printer on-line with the mainframe
- Software programs for processing financial information and preparing financial statements be supplied to every school
- Each auditor and technician be equipped with micro computers or terminals on-line with the mainframe and with the schools
- A high speed letter-quality printer for internal audit be provided
- Software programs be purchased which would enable internal auditors to retrieve and process school financial data and to prepare school financial statements
- Software programs be purchased which would enable internal auditors to work on-line with school and central office accounts using micro computers or terminals

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Human errors in calculation will be reduced.
- The auditing process will become more efficient and expeditious.
- More time will be spent in management performance and management auditing.
- The volume of paper will be greatly reduced.

- The amounts and types of reports available to decision-makers will be increased and timely.

- Decision-making will be facilitated.

PROGRAM AREA: FOOD SERVICES

PRESENT STATUS

The School Food Service program is a self supporting program which serves breakfasts and lunches in every school in the system. Financial support for the program is derived from the following sources: federal (26%), state (3%), and food sales (71%). Because 26% of the revenue is received from federal sources, the program must comply with all federal requirements which include the maintaining of records for three years plus the current year for all program income and expenditures, meal service data, menu planning, and eligibility data.

Financial and programmatic audits are conducted by independent or state agency auditors according to schedules that comply with federal regulations. The Division of Food Services is reviewed on a four-year cycle with 25% of the schools reviewed each year.

Menus must meet the requirements of a balanced meal. Free and reduced priced meals are served to students who are eligible. Eligibility is federally determined based on family size and income. Any student who is eligible cannot be identifiable in any manner, except to those with a need to know.

Meals are prepared at 39 base schools and 76 satellite schools. Bulk food items such as spaghetti are prepared at the base schools and transported to the satellite schools. All other foods are prepared at the satellite schools. Only two schools, Phoenix Annapolis and the Learning Center, have no cooking facilities.

The following tables depict the number of meals served and the size of the food services staff:

	Meals Served 1985-1986
Full price lunches	2,984,790
Free lunches	719,580
Reduced price lunches	191,784
Full price breakfasts	51,652
Free breakfasts	335,664
Reduced price breakfasts	17,982

Food Services Staff
1985-1986

Supervisor of Food Services	1
Food Services Accountant	1
Area Managers	5
Secretary	1
Food Service Technician	1
Food Services Clerk	1
Accounting Technician	1
Accountant Clerk	1
Cafeteria Staff	460
TOTAL	472

RESEARCH

A review of the literature produced the following findings:

- Meal pattern requirements may change as a result of scientific research.
- Accountability will continue to be an essential component of food service programs.
- Reduced federal funding may occur which would result in state and local governments assuming a greater role in funding school food services.
- The United Stated Department of Agriculture (U.S.D.A.), will continue to provide food from agricultural surpluses.
- There will be an increased effort on the part of U.S.D.A. to donate only processed foods to state agencies.
- If funding decreases for full price meals, the participation for full price meals will decline.
- Food services in elementary schools will expand to provide meals for children who remain for after school care.
- Food services will be extended in order to provide meals for senior citizens.

RECOMMENDATION

Food intake has a direct effect on the health and functioning level of a person. Thus, the aim of the Food Services Division is to provide nutritious, well prepared, appetizing meals at a minimal cost while conforming to all federal, state, and local requirements.

It is recommended that:

> **NUTRITIOUS, COST EFFECTIVE MEALS BE PROVIDED TO STUDENTS AND STAFF OF THE SCHOOL SYSTEM AND TO OTHER CITIZENS WHERE FEASIBLE**

In order to implement the above recommendation, it is proposed that:

- The computer be utilized to full advantage in the areas of:
  - menu development
  - centralization of free and reduced price applications
  - accounting and record keeping
- Employee training in the use of the computer be incorporated into the inservice training schedule
- Presently prepared bulk food items be preprocessed and packaged in serving size portions
- Appropriate contracts be required for outside agencies requesting food service assistance
- Working arrangements be developed for providing food services to citizens in general and to outside agencies
- Specifications for kitchen equipment and supplies be changed to meet the trend toward more processed foods

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Meal pattern requirements will comply with Federal regulations and satisfy client preference.
- Administrative responsibilities will be accomplished in an accurate and complete manner.
- Food service equipment will meet the needs of a changing food service.
- The Division of Food Services will become part of a team responding to community needs.
- Healthy, nutritious meals will enhance the capability of students to function.

PROGRAM AREA: FOREIGN LANGUAGES and ESOL
CONSIDERATION: FOREIGN LANGUAGES

PRESENT STATUS

Through its foreign language program, the school system offers secondary school students formal instruction in four modern foreign languages (French, German, Russian, and Spanish), one classical language (Latin), and an introductory language exploration course which introduces 6th and 7th graders to the study of languages, communication systems, and foreign cultures. The most important goal of the modern foreign language program is to enable the students to achieve communicative proficiency in a second language by developing the four basic skills of listening, speaking, reading, and writing in the target language. Closely related to this linguistic goal is that of increasing the students' awareness of and respect for the cultures, customs, and daily living patterns of other people and nations. Consequently, culture is an integral part of foreign language instruction and is used as a vehicle for teaching the four basic language skills. In addition to these primary goals, the foreign language program strives to develop in the students a clearer understanding of their own culture and belief systems, improve their English language skills, bring about a greater awareness of career and educational opportunities, and provide them with a global perspective from which they can view and interpret the world around them.

Latin provides students with the opportunity to be exposed to a classical language. Although listening and speaking play a secondary role in the learning of Latin, this program also strives to develop the students' linguistic abilities in the areas of reading, writing, translating, and interpreting; to broaden their perspectives through the study of Roman culture and history; and to increase their command of English through the study of grammatical structure, syntax, and etymology.

In the course of the past several years, the foreign language program has experienced slow but steady growth. Even in the face of an overall decline in the number of students enrolled in the county schools (especially at the secondary level where foreign language instruction is currently concentrated), the number of students who are taking foreign language classes has been slowly increasing. During the 1985-86 school year, some 12,600 students in the middle, junior high, and senior high schools were engaged in some sort of foreign language study. This figure represents almost 38% of the entire countywide secondary school enrollment. While these figures indicate that there is still room for a considerable amount of growth, they compare well with national enrollment statistics. According to recent reports, the number of students studying foreign languages nationwide has actually declined over the past decade to the point where only 23% of the nation's secondary school age children are enrolled in foreign language classes.

The foreign language program sponsors a variety of special events which serve to provide students with expanded opportunities to use their new language skills in out-of-classroom settings. At the same time, these activities tend to increase student interest in and public awareness of foreign language study. Throughout the school year, students are offered opportunities to participate in various contests which attract students with many interests. Such contests include posters, cultural projects, piñatas, computer games, spelling bees, and cooking. During the fall of each year, upper level French and Spanish senior high school students have a chance to attend either the "Réunion Française" or the "Reunión Española" at the Arlington Echo Outdoor Education Center. During these two events which are usually overnight, two-day experiences, students must sign a pact promising to speak only French or Spanish. In the spring of each year, German and Latin students have similar opportunities during a day-long "Fruhlingsfest" or "Lupercalia."The spring is also the time for the countywide International Foreign Language Festival: "A-Foreign A-Fair." This event has grown each year and includes displays, entertainment, booths, games, and awards presentations from virtually all schools in the county that have foreign language classes. On a more local basis, individual schools have foreign language clubs, international clubs, American Field Service chapters, and other activities which supplement regular formal foreign language instruction. All of these special events and activities are indicative of the high degree of commitment and dedication that the county's foreign language teachers have repeatedly demonstrated in support of the program.

The county's foreign language curriculum has evolved through an orderly and continuing process of revision and updating. Committees of teachers, students, and parents work regularly to evaluate the success of the foreign language curriculum and to make necessary changes and revisions. Curriculum guides have been designed to provide a common, countywide base for each level of instruction while still providing for individual interests and needs. At the present time, the curriculum guides for each level are being revised in a systematic process, beginning with Level 1, with the goal of incorporating proficiency aspects into the program. Proficiency oriented instruction places emphasis on practical, realistic use of the language for communicating ideas, preferences, opinions and needs.

Hand-in-hand with curriculum development is staff development. Foreign language teachers are actively involved in a variety of professional and career development activities, such as graduate programs, special immersion sessions and workshops at local and overseas universities, participation in seminars and professional conferences, foreign travel, and county sponsored staff development programs. In recent years, a variety of inservice courses have been offered, including workshops on teaching methods, computer literacy, techniques of teaching ESOL, and introductory language courses for teachers interested in learning foreign languages other than those that they are currently teaching. Teachers are encouraged both to suggest areas of need and interest and to conduct inservice programs for their colleagues.

The success of the foreign language program is measured in a number of informal ways. One measure of success, for example, is the increase in the number of students taking one or more foreign language classes. Interest in foreign language study has expanded to include elementary schools, many of which rely upon volunteer high school students to staff their Language Experience programs. Widespread student participation in such out-of-classroom activities as the French and Spanish weekends, German and Latin days, the International Festival, foreign language summer camp, countywide contests, and local school banquets, festivals, clubs, and fundraisers emphasizes the continuing success of the foreign language program in meeting the needs and maintaining the interest of the students that it serves.

Currently the characteristics of foreign language instruction vary from level to level (i.e., elementary, middle/junior high, and senior high school).

Foreign Language Study in Elementary Schools

At the present time, there is no formal foreign language program in the county's elementary schools.

Foreign language study below grade 6 (below grade 7 in K-6 elementary schools) is limited to a patchwork of informal programs which are commonly referred to as LEX (i.e., Language EXperience). LEX is a local term and is not a formal program as opposed to Foreign Language Exposure (FLEX), a national program. The decision whether or not to offer a LEX experience is the prerogative of each elementary school. LEX may take many different forms and may be taught under widely differing circumstances in elementary schools across the county. Spanish, French, and German are the most commonly taught languages in the elementary schools, although others may be included. Currently there are three major ways that LEX is being made available to elementary school students: (1) upper-level foreign language students from senior high schools volunteer to go to local elementary schools once a week to teach French, German, Spanish, or Latin; (2) parent volunteers staff LEX programs; and most recently, (3) adults and/or high school students are paid by the Recreation and Parks Department to teach foreign languages to elementary school students. LEX instruction may be scheduled either as an after-school activity or as a pull-out program during the school day. In some schools, more than one of the above approaches may be employed; in others, no LEX instruction is available. During the 1985-86 school year, LEX instruction was available in 46 of the 74 elementary schools. The nature and scope of the LEX program is determined by the local elementary school principal. Regardless of the organizational approach employed, the primary purpose of the LEX programs is to develop language skills and cultural awareness at the elementary level.

LEX ENROLLMENT REPORT: 1985-86

	Number of Students
French	2093
Spanish	1932
German	662
Russian	55
Latin	64
Italian	27
Japanese	20
TOTAL	**4853**

A recent development which warrants further investigation is the involvement of the Recreation and Parks Department in the area of elementary school foreign language study. In some areas of the county, Recreation and Parks has taken on the responsibility for organizing and presenting foreign language programs in elementary schools. Ways of coordinating the efforts of the Recreation and Parks Department and the school system to provide elementary level foreign language instruction are currently being explored. One area of possible cooperation is for the school system to expand its already existing inservice training program for volunteers and students to include the instructors that Recreation and Parks hires. Under such an arrangement, Recreation and Parks could schedule and advertise their classes and hire part time teachers while the Foreign Language Office could train the teachers and provide the instructional materials that have been developed for French, German, Spanish, Latin, and Italian.

Foreign Language Study in Middle and Junior High Schools

The first opportunity for county students to begin formal foreign language study is at the middle or junior high school level. Because of the varying grade organization patterns found in different parts of the county, the middle level foreign language offerings vary from school to school. The recommended and most common middle school pattern begins with Exploratory Foreign Language in the 6th grade (every other day for a year), followed by a two-year sequence of Level I study on an alternate day basis (i.e., Level IA in grade 7; Level IB in grade 8). In junior high schools, the most frequently found pattern begins with the two-year, alternate day Level I sequence, followed in the 9th grade with a full year of Level II. Some middle level schools make provisions for 8th graders to begin daily Level I instruction; others make Exploratory Foreign Language available to 7th graders.

During the 1985-86 school year, approximately 6,650 middle and junior high school students were enrolled in some kind of foreign language study. This figure represents just over 47% of the total middle level student population. Spanish and French, in that order, are the most popular foreign languages at this level, with Exploratory Foreign

Language and German also being represented. Latin and Russian are not currently offered to middle or junior high school students.

Foreign Language Study in Senior High Schools

At the senior high school level, foreign language instruction includes all of the traditional levels from Level I through Level V and AP Level V. French is offered in all 13 of the senior high schools; Spanish in 12; German in 7; Latin in 7; and Russian in 1. During the 1985-86 school year, just over 5,950 senior high school students were enrolled in one or more foreign languages. This represents almost 31% of the total senior high school population. As is the case in the middle level schools, Spanish and French, in that order, make up the bulk of the foreign language enrollments, followed by German, Latin, and Russian. Advanced Placement (AP Level V) courses in French are being taught in 8 senior high schools; Spanish in 8; and German in 4. AP Level IV Latin was offered in one senior high school in the fall of 1986. A special program in French, German, or Spanish for 11th and 12th graders who have not elected to take a foreign language earlier in their education has been designed. This course emphasizes the functional, daily-use aspects of the language, including practical vocabulary, international travel information, cooking, sports, music, pen pals, and culture. During the 1985-86 year, although two schools offered the functional courses, none were actually scheduled. In the small senior high schools, foreign language teachers are often required to teach five different levels of foreign language, to share their time between foreign languages and one other subject, or to teach on a part time basis. At the upper levels of foreign language study, combined classes are not uncommon and some schools have turned to interactive TV to broadcast or receive foreign language classes which could otherwise not be included in the master schedule due to small enrollments.

RESEARCH

A review of the literature produced the following findings:

- There is a growing awareness not only that the traditional monolingualism of our populace has become a national embarrassment, but that it is also sapping the vitality and strength of the country.
  - National study commissions as well as educational, trades and industry, political, parent, and defense organizations and groups increasingly have been stressing the critical nature of the need for more of our students to develop communicative proficiency in foreign languages.
  - Developing proficiency in one or more foreign languages is seen as the key which links international understanding and national interests.
  - American businesses have lost, and continue to lose, markets to foreign competition because of blunders resulting from the lack of competence in foreign languages and the concomitant inability to understand foreign cultures, mores, and daily life patterns.
- The emphasis of foreign language study is shifting from studying about languages to the development of communicative proficiency in the languages.
  - Proficiency in foreign languages requires that language learners develop the ability to use their language skills in real-life, out-of-classroom situations and that they be able to communicate with native speakers.

- A minimum of 150 hours of contact time is required to evolve the barest level of "survival skills" in a foreign language.

- Proficiency will not result from 4-6 years of studying grammar and syntax. It is the end product only when listening, speaking, reading, and writing skills development are stressed.

- Proficiency in foreign languages includes knowledge of the culture, history, and life patterns of the society in which the language is spoken.

- Foreign language curriculum guides need to specify language proficiency goals for the end of each year of study at all levels, with special attention to speaking proficiency.

- The American Council on the Teaching of Foreign Languages (ACTFL) Provisional Proficiency Guidelines have been proposed as practical descriptions of proficiency in the basic language skills of listening, speaking, reading, and writing, and in the area of culture.

. As contacts with nations in all parts of the world increase, so does the need to study languages other than those of Western Europe. Economic, political, diplomatic, and defense factors make it imperative that the United States produce a cadre of students who are proficient in a wide variety of foreign languages.

- Of those American students who are currently enrolled in foreign language classes, the vast majority (99%) of them are studying Western European languages:

Spanish	53%	Latin	5%
French	30%	Italian	2%
German	9%		

- Less than 1% of American secondary school students who are studying foreign languages are enrolled in Russian classes. In fact, there are more teachers of English in the Soviet Union than there are students of Russian in the United States.

- According to recent statistics, there are twelve world languages with more than 100 million speakers. Of that number, seven are non-Western European languages. Speakers in millions:

Chinese	954	Bengali	166
English	415	Portuguese	161
Hindi	287	Malay-Indonesian	125
Spanish	285	Japanese	121
Russian	282	German	118
Arabic	171	French	112

- Because of economic need resulting from increased international trade, increasing number of business men and women are studying foreign languages in preparation for overseas assignments. Currently the languages most frequently being studied by United States nationals who are going abroad are:

1st	Spanish	6th	Japanese
2nd	French	7th	Italian
3rd	German	8th	Chinese
4th	Portuguese	9th	Korean
5th	Arabic	10th	Russian

. There is a growing awareness of the need to provide opportunities for students to begin foreign language study in the elementary school grades as well as evidence of a commitment on the part of the public for such programs.

- Foreign language study before grade six is currently available to approximately 4% of the students in the United States.

- National surveys reveal that 75% of Americans believe foreign language should be taught in elementary schools; 40% believe that foreign language study should be required of all elementary school students.

- Special emphasis should be placed on foreign languages in the elementary grades because it is in early childhood that basic attitudes are formed, the beginnings of language comprehension are put into place, curiosity is at its peak, and the foundations are laid for further learning.

- The optimum age for beginning foreign language study is between the ages of 5 and 12 years old. The ability to acquire a second language decreases year by year until the child has reached his late teens, when it reaches its lowest level. Current practices nationwide result in students beginning their foreign language study at a period in their development when receptiveness to a second language acquisition is low.

- A high percentage (approximately 75%) of students who begin foreign language study in the elementary school grades continue studying the same foreign language in junior and senior high school and are especially enthusiastic and committed to their language studies.

- School systems which have organized elementary school foreign language programs also have marked increases in foreign language study at the junior high and senior high school levels.

- The effectiveness of elementary school foreign language instruction depends on the time devoted to it, manageable class sizes, a supportive atmosphere, well trained teachers, and the careful integration of early language study with higher levels of study.

- Elementary school foreign language programs, in response to repeated calls for their inclusion in the elementary curriculum, are beginning to experience a new period of growth nationwide. There is a variety of models to choose from (e.g., immersion, FLES, and FLEX), each permitting a vast range of goals and requiring varying degrees of commitment in terms of time and resources on the part of the school.

    . Immersion is a form of bilingual education that teaches regular elementary school curriculum through the medium of a foreign language. In such programs, the foreign language is the medium of instruction rather than the target of instruction.

  - Foreign Languages in the Elementary School (FLES) refers to programs which can be taught before, during, or after school for a specific number of days per week. The emphasis of FLES programs is on the spoken language with attention being given to the development of cultural awareness.

  - Foreign Language Exposure (FLEX) programs focus on cultural awareness and develop limited language skills. FLEX programs are generally conducted during the regular school day on a weekly basis.

- Nationwide, at both private and governmental levels, there is a growing awareness of the harm to the national interests resulting from the pervasive lack of understanding and interest in other peoples, their customs, languages, daily life patterns, mores, histories, and geography. In response to this realization, calls for improved instruction in the area of international studies, or global education, are increasing. Foreign language study is an integral, although often overlooked, component of international studies.

  - There is a clear need for the United States to understand the cultural mores, languages, and traditions of both its allies and its adversaries in order to achieve national goals.

  - The nation's economic, political, defense, and diplomatic interests are being threatened worldwide as much by ignorance of foreign languages, world history, geography, daily living problems, and customs as by overt actions of hostile governments.

  - National study commissions, professional associations, business and trade organizations, and military leaders are calling for the integration of foreign language study and the study of the social studies.

  - From a national perspective, young men and women with proficiency in foreign language are sorely needed now that the U.S. is increasingly involved in competitive trade and investment with the rest of the world.

  - Achieving proficiency in one or more foreign languages introduces students to non-English-speaking cultures; heightens awareness and comprehension of one's native tongue and culture; and serves the nation's needs in commerce, diplomacy, defense, and education.

  - The importance of foreign countries to the national interests is great: 25% of the Gross National Product is derived from the import/export factor; one third of all U.S. corporate profits come from international operations; the 13 largest banks in this country derive half of their total earnings from overseas business; and one out of every three acres of U.S. farmland is cultivated directly for export.

- As developing proficiency in the four basic language skills and cultures becomes accepted as the major goal of foreign language study, the need for expanded opportunities for first-hand contact with the peoples and cultures where the languages are spoken increases. Exchange programs involving students and faculty are recommended for meeting this need.

  - One of the best ways to learn the nuances of another culture is to live in the country of that culture's origin.

- Being an exchange teacher is an educationally and culturally rewarding experience and increases job satisfaction, expertise, and commitment.

- Exchange programs set up on a reciprocal basis are a good way to reduce the cost of study abroad.

- Support should be given for the participation of outstanding language teachers and students in programs for study abroad.

- Exchange programs expand opportunities for teachers to live and study abroad so that their teaching is realistic and current.

- Exchange programs contribute uniquely to encouraging informed views of the United States in other lands.

. A national trend which may have an adverse impact on the schools is the imminent shortage of qualified new teachers to fill vacancies and to staff new positions.

  - While teacher shortages will be felt in all academic fields, the area of foreign languages will be especially hard hit.

  - The Maryland State Department of Education (MSDE) estimates that between 1985 and 1987, 335 new foreign language teachers will be needed in Maryland and that there will be a shortage of approximately 280 foreign language teachers throughout the state.

  - While the pool of new foreign language teachers is shrinking, current moves by MSDE to strengthen initial certification requirements may reduce further the number of people who will be eligible to enter the field.

RECOMMENDATION

There is a growing consensus that foreign language study is an essential element of the basic school program. National surveys reveal that 9 out of 10 Americans believe that foreign languages should be offered in junior and senior high schools and that more than 3 out of 4 believe that they should be taught in the elementary schools. Likewise recent national commission reports have stressed the need for increased foreign language study in the schools. Representative of such reports is Critical Needs in International Education, the report of the National Advisory Board on International Programs. That board concludes that "An emerging consensus places the study of foreign languages and cultures alongside the five basics of English, mathematics, computer science, social studies, and the natural sciences as fundamental components of a sound education." An even stronger statement is contained in Strength Through Wisdom: A Critique of U.S. Capability, the report of the President's Commission on Foreign Language and International Studies, which states in part that "Our gross national inadequacy in foreign language skills has become a serious and growing liability. It is going to be far more difficult for America to survive and compete in a world where nations are increasingly dependent on one another if we cannot communicate with our neighbors in their own languages and cultural contexts." Given the school system's commitment to the pursuit of exaellence in education, the study of foreign languages is a vital part of the school's educational program.

It is recommended that:

OPPORTUNITIES BE EXPANDED FOR STUDENTS OF VARYING ABILITIES AND WITH DIFFERING CAREER AND EDUCATIONAL OBJECTIVES TO DEVELOP PROFICIENCY IN ONE OR MORE FOREIGN LANGUAGES

In order to implement the above recommendation, it is proposed that:

- The development of proficiency in the areas of listening, speaking, reading, writing, and culture be made the major emphasis of the foreign language program

- A formal Foreign Language Experience (FLEX) program be established in all elementary schools, beginning at grade 4

    - In grades 4 and 5, the FLEX program is not language-specific; instead, it investigates communication systems, introduces students to several different languages, and focuses on cultural awareness. Many of the topics and activities currently included in the Exploratory Foreign Language course should be incorporated in the FLEX program at grades 4 and 5. Where appropriate, FLEX activities should be coordinated with the elementary school social studies program.

    - In grade 6, the FLEX program becomes language-specific as students are given the opportunity to concentrate on one of the languages which are taught in secondary schools. The emphasis at this level is still on cultural awareness and understanding, although developing elementary language skills in one foreign language will be initiated.

- Students in grades 7 and 8 be provided with opportunities to begin regular Level I foreign language study

- The variety of foreign languages that may be taught be expanded by including some of the major less commonly taught languages. The recommended offerings are:

    French
    German
    Japanese
    Latin
    Mandarin Chinese
    Russian
    Spanish

- In addition to the three traditionally taught foreign languages, schools, especially the larger senior high schools, be encouraged to offer at least one of the less commonly taught languages

- Coordination with the social studies program in the area of International Studies be increased

- A program be implemented which will lead to student and teacher exchanges with counterparts in the countries where the target languages are spoken by:

    - identifying criteria and guidelines for selecting participants

    - negotiating with foreign school systems to set up the terms for exchanges

    - arranging for the awarding of credit toward graduation for students and toward recertification for teachers who participate

- An aggressive and innovative recruitment plan be initiated which is designed to attract foreign language teachers to overcome the adverse effects of the impending teacher shortage
- The foreign language curriculum be revised to include proficiency outcomes for the end of each year of study
- Inservice and staff development activities be offered in the areas of current instructional philosophies, methods, and materials
- Inservice and staff development activities be offered to inform foreign language teachers of techniques and materials which will lead to the attainment of communicative proficiency
- Curriculum guides be developed and materials of instruction be obtained for teaching FLEX, Chinese, Japanese, and Russian
- Teachers be recruited who are qualified to teach FLEX, Chinese, Japanese, and Russian
- A minimum of 30 minutes per week be allotted in the elementary school program in grades 4 and 5 for FLEX instruction during the regular school day
- Staff development activities be provided for social studies teachers to prepare them for implementing the foreign language component of the International Studies program
- Partnerships be established with embassies and businesses

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- At the conclusion of their foreign language study, students will be better prepared to use their new second language skills to communicate with others in real-life situations and will have a clearer understanding of the customs and daily life practices of the peoples whose language they have studied.
- A greater number of students will study foreign languages.
- Students will have greater opportunities to study languages which are consistent with their career and educational interests and plans.
- Students will have a longer language sequence and will have greater opportunities to study more than one foreign language.
- Students will achieve higher degrees of second language proficiency as longer language sequences are made available.
- Students will develop a broader perspective from which to view the world and will improve their knowledge of geography, history, and the cultures of other peoples.

- Students and teachers will have opportunities to experience first-hand the languages, cultures, and daily living patterns of the peoples whose languages they are studying.

- Students will develop better English language skills and will have a clearer understanding and appreciation of their own culture.

- Students will be better prepared to meet the challenges of the future.

CONSIDERATION: ENGLISH for SPEAKERS of OTHER LANGUAGES (ESOL)

PRESENT STATUS

ESOL is a specialized program which is designed to meet the unique needs of students with no or limited native proficiency in English. The ultimate goal of the ESOL program is to prepare Non-English Proficient (NEP) and Limited English Proficient (LEP) students to become functioning members of the mainstream of the school and society as quickly as possible. To this end, the ESOL program assists LEP students in acquiring the ability to communicate effectively with native speakers of English by developing their language skills in understanding, speaking, reading, and writing standard American English. Consistent with the goal of preparing LEP students to function successfully in the society at large, the language skills are taught within the context of the culture, traditions, and daily living patterns commonly found in the United States.

Because of the widely divergent backgrounds of the LEP students in this county, the ESOL program must provide for a high degree of individualization. Among the many factors that must be considered when preparing instructional programs for LEP students are age and maturity level, English ability (if any), degree of native language fluency and literacy, previous educational background (including highest level attained and any possible interruptions), current educational setting, home and family situation, possible learning disabilities or emotional problems, and length and purpose of stay in the United States.

Assessing student needs is the first task of the ESOL teacher. In order to accomplish this task, the ESOL teacher employs a variety of approaches and materials, including a recently developed county screening instrument. Based on this initial assessment, the ESOL teacher proposes a program of study which emphasizes the development of English language skills and which is closely correlated with the student's general school program. Beyond the initial assessment, the ESOL teacher can provide the following services to LEP students and to their schools: instructing students in American English, monitoring advanced LEP students who do not receive direct instruction, supporting and advising regular classroom teachers (including teaching techniques and instructional materials), serving as a student advocate, and being a liaison between the school and the home.

At the early stages of language study and during the elementary school grades in particular, all four of the basic language skills are developed in a sequential manner, beginning with listening and speaking and progressing to reading and writing. Because the language development of students at this age is reinforced and strengthened by play and other informal interaction with peers beyond the ESOL classroom, elementary school age children generally make rapid progress in developing at least a functional ability in English. At the more advanced levels of language instruction and particularly in the middle, junior high, and senior high school grades, however, the reinforcing role of informal interaction decreases. At the same time, the nature of secondary school instruction places greater emphasis on the reading and writing skills. Because many LEP students enter secondary school with severely limited English reading and writing skills, their language deficiencies often compound the problems normally associated with the transition from elementary to secondary school. While all four of the basic language skills still need to be addressed, the ESOL teachers must take particular care at this level to plan learning activities and to locate instructional materials which will lead to the strengthening of their students' reading and writing skills.

In addition to developing language skills, the ESOL program also strives to ease the students' adjustment to life in the United States by helping them to develop a positive self-image, to maintain pride in their own cultural and linguistic heritage, and to dispel their frequent initial feelings of insecurity, anxiety, and frustration. ESOL teachers are often viewed by their students as their link to United States society, and as such, the teachers may frequently function as student advocates, as arbitrators, and especially as interpreters of American daily life patterns.

Making native English-speaking students aware of other cultures and peoples is another important function of the ESOL program. In many schools which have ESOL programs, the ESOL teachers have been instrumental in implementing multicultural programs which serve both to increase the English-speaking students' appreciation of and respect for cultures other than their own and to help ease the LEP students' transition to their new settings.

The bulk of ESOL instruction is carried out by the 9.6 county funded itinerant ESOL teachers. These teachers serve more than 300 LEP students in just over 70 schools across the county. While students from some 40 countries are served by the ESOL program, the greatest number (64% of the total) come from Asian nations, with 41% from Korea alone. Following the Koreans, the national groups with the greatest representations are from Puerto Rico (23 students), Vietnam (21 students), and Taiwan (14 students). Included in the 1985-86 ESOL count were 13 American citizens who had limited native English proficiency.

The students served by the itinerant ESOL teachers generally receive instruction twice a week on a pull-out basis (i.e., they are pulled out of regular classes for ESOL assistance), although once a week and three times a week schedules are also possible, depending on student needs and teacher availability. This approach works especially well for elementary school age children; for secondary students, more frequent ESOL assistance is desirable. Each itinerant teacher is assigned to a cluster of schools and visits these on alternate days. The amount of time spent in each school depends on the number and proficiency levels of the students. While ESOL teachers strive to maintain close communication with other teachers who are responsible for the education of LEP students, scheduling conflicts may make it difficult to maintain regular conference times for discussing student needs.

In addition to the students served by the itinerant program, approximately 30 students are currently receiving ESOL instruction from school-based personnel. Two schools, one middle school and one senior high school, include ESOL classes staffed by their own teachers in their regular master schedules. The middle school serves four students on an alternate-day basis; the senior high school has approximately 25 students of widely differing English proficiency levels in one daily class. As the number of LEP students has increased in the senior high school class, itinerant ESOL teachers have been assigned to assist the local teacher.

Counting the students who are served by the itinerant teachers and those taught by school-based teachers, there are 300 LEP students receiving special English assistance. Of that number, 194 are in elementary school, 106 in secondary schools. Secondary school ESOL enrollments include 29 in middle schools, 27 in junior high schools, and 50 in senior high schools.

The itinerant ESOL staff members meet once a month with the Coordinator for Foreign Languages and ESOL in order to share ideas, discuss current trends, solve problems, readjust schedules, and demonstrate effective techniques. Additionally, staff development activities this year have included a presentation on proficiency rating by a consultant from University of Maryland Baltimore County and a trip to the Fairfax County (Virginia) Public Schools to observe their ESOL centers in operation and to meet with their county level ESOL personnel.

RESEARCH

A review of the literature produced the following findings:

- U.S. Census data reveal that language-minority children constitute the fastest growing segment of the United States school population. Birthrates of Hispanics and other ethnic minority groups are running considerably higher than those of English-speaking whites. Estimates of the number of LEP students run from 1.5 to 3.5 million and more than 10% of the nation's school age children come from homes in which a language other than English is spoken.

- Despite some 20 years of national attention to the problems associated with educating language minority children, there is still relatively little known about how such children learn a second language. In general, the quality of research in the area of LEP education has been poor and there are no long term studies that examine and compare different approaches.

- In recent years, there has been a call for greater local control of programs for LEP students and an increased interest in employing a variety of educational approaches. There is a growing belief that too little is known about the various factors affecting learning in the language-minority child to permit program prescription from Federal levels.

- When compared with their English-speaking peers, LEP students generally demonstrate a gap in academic achievement. As LEP students enter school in the secondary grades, this gap is more pronounced and the need for special English language assistance is increased. Experience shows that some groups of LEP students who have successfully completed ESOL or other English assistance programs excel in their academic studies at the secondary school level.

- At the same time that the United States is moving toward greater cultural pluralism and diversity, there is a growing backlash movement which calls for the establishment of English as the sole official national language and which views unfamiliar customs and lifestyles with suspicion. Faced with these conflicting trends, the ESOL program should continue to ensure that its students master the English language while at the same time promoting intercultural awareness and understanding.

RECOMMENDATION

The county has a diverse Non-English Proficient and Limited English Proficient population enrolled in its schools. These students vary widely in their degree of English proficiency and are found at all grade levels. In order to prepare these students to take their place in the mainstream of American society, it is necessary for them to develop the ability to communicate effectively with native speakers of English. The schools recognize their responsibility to provide appropriate English language instruction for LEP students of various ages.

It is recommended that:

> **TWO ESOL CENTERS FOR JUNIOR AND SENIOR HIGH SCHOOL LEP STUDENTS BE ESTABLISHED AND THE ELEMENTARY AND MIDDLE SCHOOL ESOL PROGRAM BE CONTINUED ON AN ITINERANT BASIS**

In order to implement the above recommendation, it is proposed that:

- Regional ESOL centers be established for secondary school LEP students. Students in need of ESOL assistance should attend their home schools for the major portion of each school day and be transported to an ESOL center for the remainder of the day.
- Secondary school LEP students be bused to the ESOL centers via the already-existing Voc-Tech shuttle buses
- The itinerant program for elementary and middle school students be expanded in order to provide opportunities for increased ESOL instruction
- Closer coordination and articulation be encouraged among the educators who work with LEP students, including ESOL teachers, regular classroom teachers, speech therapists, reading resource teachers, and others
- Ongoing inservice training for ESOL teachers be provided to keep them aware of changing techniques, strategies, and materials; to prepare them to work with LEP students with special needs (e.g., special education or physically or emotionally handicapped students); and to prepare them to assist students in preparation for the state mandated functional tests
- The use of volunteers from the community be continued and expanded to implement follow-up and remedial activities on a regular basis
- Inservice training be provided for regular classroom teachers and volunteers who work with LEP students, with an emphasis on how to meet the special needs of these students in regular classrooms
- Local schools be encouraged and assisted to take steps to reduce the anxiety and frustration which is often felt by new LEP students
- The multicultural programs be expanded to include both schools which normally have itinerant ESOL programs and those which do not
- Student and teacher schedules be revised to provide for increased ESOL instruction and improved contact between teachers

- Effective diagnostic, instructional, and evaluative materials and techniques be developed and employed

- The reportoire of instructional methods be expanded to include computer assisted instruction

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- LEP students will achieve greater success in their ESOL and regular coursework and will meet the requirements specified by the state and county for graduation from high school.

- LEP students will be better prepared to function effectively in the mainstream society in the United States.

- LEP and native English speaking students will have greater opportunities to learn from each other and to share information about their countries, cultures, and daily living patterns.

PROGRAM AREA: GIFTED/TALENTED/ADVANCED PROGRAMS

PRESENT STATUS

Since publication of the Ten-Year Plan in August 1980, gifted/talented/advanced programs in the county have shifted emphasis from adjunct offerings administered apart from established instructional programs to school based offerings woven into the fabric of standard curricula. This shift in emphasis is manifested by developments in four areas: student identification, curriculum development, program delivery, and staff development.

Student identification

In June 1982, approved procedures for identifying highly able and gifted/talented students for placement in advanced programs were approved. Separate procedures were established for programs evolving in two grade categories, grades 4 through 6 and grades 7 through 12. Both synthesize data from four sources -- standard age scores from the Cognitive Abilities Test (CogAT), percentile scores from the California Achievement Test (CAT), teacher nominations based on behavioral checklists, and student grades -- to set identification and placement guidelines. Final placement decisions are made by school committees.

Curriculum development

Curricular modifications attuned to the capabilities of highly able and gifted/talented students began in the summer of 1981. They define qualitatively different programs of study extended to advanced students in place of standard programs. The current status of and projections for advanced programs in each of the four content areas where differentiated curriculum have been developed follow.

Differentiated English language arts curricula have been developed and implemented for grades 7 through 9. Additionally, an Advanced Placement English course has been established for high school seniors. Advanced Composition and The American Dream are projected for 1987 and 1988, respectively.

Mathematics programs have been established for highly capable fourth and fifth grade students. Advanced Mathematics 6 was developed in July 1986, to replace Introduction to Algebra which was phased out during the 1985-86 school year. At the secondary level, Advanced Mathematics 7 and a differentiated academic sequence of courses, beginning with Algebra I and extending through BC Calculus, are operational. Gifted/talented seventh grade mathematics students may also opt out of Advanced Mathematics 7 and enroll in Algebra I.

In science, advanced programs have been developed for grades 4 through 8. Additionally, College Board Advanced Placement (AP) programs have been established in chemistry, physics, and biology.

Social studies curricula for advanced students have been developed and implemented for grades 4 through 8. Differentiated semester courses have been developed for American Government, Law and the Individual, and Geography and History of Europe. AP courses established in the social sciences are U.S. History and Modern European History. A humanities course that integrates the fine arts and social sciences is projected for implementation in 1987.

Program delivery

At the elementary school level, curricula differentiated for highly capable students are implemented through grouping within established classrooms. Programs defined by the curricula are established and maintained with support services provided on a rotating basis by a team of eight resource teachers. Secondary school programs are delivered via course sections designated for highly able and gifted/talented students. Additional school staff are sought to maintain these sections without deleterious effects on other instructional programs.

Adjunct programs addressing a wide spectrum of gifts and talents, including the visual and performing arts, are available to students in grades one through twelve. For the most part, they are offered outside the regular school day: before and after school, Saturdays, and summers. Over the past five years, new programs have been established: a literature seminar at St. Johns College for high school students, a program offered through Anne Arundel Community College for elementary school students who exhibit advanced capabilities in one or more areas, and summer computer programming courses for students in grades four through eight. Participation by students in existing programs has more than tripled. Full descriptions of adjunct programs currently in operation can be found in Gifted/Talented/Advanced Programs: An Overview.

Staff development

Three staff development models were formulated to prepare teachers, counselors, and administrators to implement content and processes identified for advanced programs. The first, the Gifted/Talented Professional Development Center, was established in November 1981, and serves secondary school staff. Approximately 25 administrators, 30 counselors, and 400 teachers have attended. The second, the Program of Student Instruction/Staff Development for Elementary Schools (SI/SD), provides extensive, long range services to elementary school teachers. One hundred ninety-eight teachers representing all of the county's 74 elementary schools have participated. Both models are research-based and train teachers in the use of instructional techniques through which higher cognitive processes are emphasized. Training proceeds in five stages: presentation of theory and procedures related to the instructional techniques, demonstration lessons by G/T/AP staff, practice and feedback, coaching, and follow-up. The third staff development model employed is a workshop series operating through the school system's Office of Staff Development. The workshop series consists of a general, two-credit course on differentiating instruction for gifted/talented students followed by one-credit, content-specific courses through which techniques imparted in the general course are molded to the various disciplines.

In addition to the three staff development models, a three-phase training program for teachers of College Board Advanced Placement (AP) courses has been been implemented by the G/T/AP Office. This program features inservices on the structure of AP courses and grading AP examinations and includes ongoing follow-up sessions through which ideas are shared and program concerns addressed. All county AP teachers have completed one or more phases of the training program.

RESEARCH

Research findings that pertain to gifted/talented/advanced programs often are not unique to them. Findings of impact for advanced students frequently are applicable to all. With this in mind, findings derived from a review of relevant literature are reported categorically.

Program Delivery

- Advanced programs, kindergarten through twelfth grade, should be integrated and articulated carefully throughout the school system and place emphasis on differentiated teaching strategies and curriculum design.
- Gifted children and youth should have the opportunity to work with other gifted children. This allows for the sharing of ideas, interests, and similar problems, and for the development of a sense of belonging.
- Curricula differentiated for gifted/talented students should reflect an appropriate blend of content acceleration and enrichment.
- The administrative prototype employed to deliver programs should be selected on the basis of benefiting the largest number of talented learners whether it be special schools, special classes, or enrichment in the regular classroom. The core idea is that students move ahead as they master content and skills.
- Resource room and pull-out models are prevalent nationwide at the elementary school level; special classes serve the same purpose at the secondary level. Further, there is strong support for cluster grouping in elementary schools and mentorships/independent study and College Board Advanced Placement courses in secondary schools.

Student Identification

- The use of nomination and rating scales is ubiquitous in identifying gifted/talented students. Corroboration of ratings is recommended by securing multiple assessments from different points of view.

- Assessment of student abilities should begin when the child first enters the school system.

- Six principles should underlie identification procedures according to the National Report on Identification: Assessment and Recommendations for Comprehensive Identification of Gifted and Talented Youth:

  - Advocacy. Identification should be designed in the best interests of all students.

  - Defensibility. Procedures should be based on the best available research and recommendations.

  - Equity. Procedures should guarantee that no one is overlooked. The civil rights of students should be protected. Strategies should be outlined for identifying the disadvantaged gifted.

  - Pluralism. The broadest defensible definition of giftedness should be used.

  - Comprehensiveness. As many as possible gifted learners should be identified and served.

  - Pragmatism. Whenever possible, procedures should allow for the modification and use of tools and resources on hand.

- Recognition of culturally different children depends on elimination of inappropriate expectations and infusion of more reliable indicators of their ability such as:

  - problem solving skills, even if only of a social nature

  - organization and manipulative skills

  - intense curiosity

  - high levels of responsiveness

- Language independent cognitive characteristics are required for accurate assessments, especially for culturally different children.

- Multi-faceted identification procedures are recommended which draw from both objective and subjective sources of information.

- Parents can provide information about their children's exceptional abilities and interests not recognized in a school setting and should, therefore, be included in the identification process.

Counseling

- Gifted students have superior social and emotional development. However, uneven development among their chronological, mental, and emotional ages and its effects on self-image need to be recognized.

- Culturally diverse gifted youngsters have unique counseling needs due to their ethnicity. Integrating their ethnic identity with their identity as gifted learners is one of the main challenges of counselors and teachers working with these students and their families.

- Sex-role stereotyping has been detrimental to gifted females. Career guidance has been the most striking area of differential treatment. Gifted females have infrequently received opportunities and encouragement attuned to their abilities; they have not been encouraged to pursue science and mathematics as frequently as males. Parents, teachers, and counselors need to maintain an unbiased attitude and awareness when working with them. When counseling for personal, social, and career development, no differentiation based on sex should be applied.

- Teachers need to take a more active and ongoing role while working with counselors to meet the needs of gifted students. Inservice training should be provided for teachers working with gifted students to enhance their understanding of the educational and emotional needs of these students.

- Research concerning underachieving gifted students has produced more confusion than direction. Identification is one issue that needs to be addressed as well as a more precise definition of underachieving gifted. Intervention with these students for the most part has been ineffective. Counseling programs to help these students must be comprehensive and involve a long term commitment.

- Parents of gifted youth need to be included in the counseling process. Family roles and expectancies play a large part in achievement in and out of school. Problems of identity and sibling relationships need to be addressed.

- Studies have shown that gifted students think about moral issues and that their way of thinking is unique to their group. Counseling gifted students in the area of moral education needs to be explored; educators should develop programs that allow gifted students the opportunity to explore moral issues.

Parenting

- Parents of gifted children play a vital role in career guidance. Their role should be one of counselor, supporter, and educator; however, final choices must be left to the child.

- Fostering giftedness at home is essential to the child's development. Academic skills can be reinforced and social skills introduced and encouraged through a nurturing home environment.

- Parent volunteer services, in addition to tapping a valuable resource, open lines of communication between community and school staff concerning gifted/talented programs.

Program Evaluation

- Evaluation of programs for the gifted/talented is receiving increased attention and becoming vitally important at the local, state, and national levels.

- Evaluation procedures should meet several criteria. They should:

    - relate directly to the educational objectives

  - be process and product oriented
  - use alternate methodologies in conjunction with a variety of instruments
  - test the effectiveness of program components
  - assess relationships among program components

Early Childhood Programs

- Advanced programs developed for young children (grades K-3) must take into account the extreme diversity represented in this population. Curriculum design should reflect:
  - elements of acceleration and enrichment
  - the skill categories of literacy, problem solving, technology, research, and productive thinking
  - principles of rate, economy, diversity, self-directedness, and challenge
- Programs should focus on feelings of self-worth as well as scholarly achievements.
- Early entrance to formal education due to giftedness may have a negative effect on school achievement.
- The younger the children, the less reliable and valid are quantifiers in providing accurate measures of giftedness. To compensate for this deficiency, activities designed to elicit behaviors associated with advanced capabilities should be implemented and observations that result used to assist in determining children's potential.
- Labeling young children as "gifted" is secondary to the primary concern of meeting cognitive and affective needs; it may cause adverse effects.
- Teachers most successful in working with young gifted children are those who are not defensive toward recognized abilities in their students, but who are willing to nurture these abilities.

English Language Arts

- Gifted students should receive reading instruction to encourage them to read more widely, more critically, and more creatively.
- Structured sequenced lessons with basals and workbooks may be inappropriate and stifling to the academically gifted child. Emphasis should be on comprehension and on critical and creative thinking.
- Focus on the importance of developing writing skills and proficiency in the use of the word processor is critical for verbally gifted students.
- The teacher of the verbally gifted should be knowledgeable in literature, language development and writing instruction. Acceptance of the gifted child's ability and encouragement of creativity is also necessary.

- An effective program integrates language through the reading, writing, speaking, and listening processes.

- In-depth research and study skills should be mastered early for gifted children.

- The approach to literature should be inductive, open-ended, and structured around the seeing of relationships.

- Highly able readers should receive instruction at their instructional, not grade, level.

Mathematics

- Presenting mathematics as a way of thinking, of deductive and inductive reasoning, that constitutes a discipline of dynamic changes and discovery is essential to the development of outstanding mathematics abilities.

- Curricula for gifted/talented mathematics students should:

  - take advantage of gifted students' ability to grasp the "basics" quickly by condensing standard elementary mathematics programs

  - stress the structure of mathematics

  - present more abstract and complex concepts than those of the basic curriculum

  - stress understanding of underlying concepts and of principles and relationships among them

  - use a discovery or an inductive approach

  - emphasize problem solving through inclusion of problem solving heuristics and challenging problem solving tasks

  - develop independent creative thinking

  - involve concept exploration through challenging apparatus and concrete materials

  - be interrelated to other disciplines

Science

- Elementary school programs for highly capable science students should place a greater emphasis on careful observation, asking thoughtful questions, hypothesizing solutions to problems, gathering information, recording findings, applying information, and communicating information to others. Instruction should incorporate the use of student-centered hands-on materials/activities.

- Secondary school gifted/talented science programs should emphasize laboratory work, experiments, and research to engage students in higher level thinking processes and more in-depth work on scientific principles. Applications of scientific principles should be made to the social setting and involve resolution of problems and issues.

Social Studies

- An effective social studies program for gifted students must encourage students to explore and to express their ideas. Opportunities should be provided for research projects, discussions and debates. Students should be encouraged to communicate through a variety of means that would include simulations, creative drama, artistic expression, and creative writing. Emphasis should be on inquiry processes and problem solving with interdisciplinary applications.

- Gifted students need to advance beyond skill development in thinking and feeling processes by participating in individual and small group investigations of real problems.

- A futuristics perspective should be infused into social studies courses. To be effective citizens, gifted social studies students need the opportunity to learn futuristic techniques and to acquire leadership and decision-making skills.

- The area of global studies provides many challenges for gifted students: acquisition of specialized knowledge, application of problem solving processes, and the development of social intelligence.

- The humanities provide an exciting learning environment that exposes gifted students to such humanistic ideals as moderation, moral responsibility, rational introspection, and broad cultural perspectives.

Visual and Performing Arts

- Recognition of talent depends on a multi-faceted approach; subjective and experiential information about students should be part of the identification process.

- The arts are disciplines -- legitimate subject matter with an intellectual base. Consequently, arts instruction for gifted/talented students should be approached from a cognitive standpoint.

Foreign Language

- The President's Commission on Foreign Languages and International Studies (1979) documented the lack of educational opportunity in foreign languages and the resulting incompetence of Americans in languages needed in an increasingly interdependent world. These deficiencies can be partially remedied by training academically gifted children as bilinguals.

- Gifted/talented foreign language students should be encouraged to study more than one foreign language including a language other than the traditional French, Spanish or German.

RECOMMENDATION

During the past six years significant changes in county programs for gifted/talented/advanced students have been witnessed. The emphasis has shifted away from enrichment courses that are offered in addition to standard school programs and often relegated to weekend and after-school activities to sequenced, advanced programs of study that are woven into the fabric of standard curricula and offered to identified students in place of typical courses. Advanced courses are distinguished by their focus on critical and creative thinking through problem solving, research, independent study, open-ended tasks, and broad based issues and themes. However, advanced secondary school programs were not established without compromises. In order to maintain advanced courses in every secondary school, classes were created for highly able and gifted/talented students, not just the gifted/talented. The result of this decision has been implementation of instructional programs falling somewhat short of the level of sophistication dictated by the capabilities of gifted/talented students. On the other hand, the inclusive nature of elementary school programs for highly capable students provides a setting in which gifts and talents can emerge. Hence, a firm foundation has been laid and direction has been established for gifted/talented programs.

It is recommended that:

> **ELEMENTARY SCHOOL PROGRAMS TO DEVELOP THE POTENTIAL OF GIFTED/TALENTED STUDENTS BE EXPANDED AND THAT SECONDARY PROGRAMS BE FURTHER DEVELOPED AND IMPLEMENTED FOR GIFTED/TALENTED STUDENTS**

In order to implement the above recommendation, it is proposed that:

Program Delivery

- Classes be established for gifted/talented students (not to include the highly able) in middle/junior and senior high schools through magnet schools or additional staffing assigned to each school

- Capable elementary school students be clustered by subject in grades 4 through 6 to facilitate implementation of advanced curricula

- Resource room(s) be established in elementary schools to implement enriched curricula developed for grades K through 3

- Class size for gifted/talented students in both elementary and secondary schools reflect program goals and objectives

Identification Procedures

- Existing procedures be modified as needed to assure recognition of advanced capabilities possessed by culturally diverse students

- Student potential be identified early via a process that equally weighs performance on standardized measures of ability and student behaviors elicited by situations requiring advanced knowledge and skills

- Identification procedures be formulated for visual and performing arts

- School directors monitor identification processes carried out in schools

Counseling

- Inservice training for counselors and teachers working with gifted/talented students be provided in order to enhance their understanding of educational and emotional needs associated with advanced abilities

- Counselors be active consultants for teachers, parents, and administrators regarding the unique needs of gifted/talented students

- Attention be paid to counseling needs unique to gifted/talented students from culturally diverse populations, especially at the elementary school level

Parenting/Advocacy

- School-based parent support groups be formed to supplement The Association for Gifted and Talented Youth (TAGTY)

- Training for volunteers be expanded to emphasize instructional requirements and behavioral characteristics of gifted/talented students

- Successes, goals, and financial needs of the program be publicized

- Training programs be developed to help parents cope with problems and needs existing in families with gifted/talented children

Evaluation

- An evaluation plan be established to assess program effectiveness

- Evaluation models for school-based and adjunct programs be differentiated

- Processes and products be assessed related to each program component: student identification, teacher selection, staff development, instructional program, evaluation, and program management

- Multiple instruments be applied to evaluate each program component

- Evaluation tasks be placed on a staggered cycle to permit adequate attention to each program component

Early Childhood

- A comprehensive program be formulated to nurture and foster development of advanced capabilities in primary grade children

- Instructional activities be developed that elicit behaviors considered common among gifted youth in order to recognize and nurture potential

- Labels pertaining to a child's capabilities be avoided

English Language Arts

- Reading instruction be provided for gifted students at their instructional, not grade, level to encourage them to read widely, critically, and creatively

- Language, reading, and writing processes in the instructional program be integrated

- Early instruction be provided on research techniques, study skills, and word processors since these skills can and should be mastered by young gifted children

- An inductive, open-ended approach to literature be adopted which is structured around the seeing of relationships and reader response

Mathematics

- Programs be expanded and maintained for advanced mathematics students that:
    - stress problem solving and the structure of mathematics
    - use an inductive or discovery approach
    - involve concept exploration through challenging apparatus and concrete materials
    - condense standard curricula where appropriate
    - present concepts more abstract and complex than those normally taught
- Programming be developed with the flexibility to make available:
    - significant acceleration through the standard sequence of academic mathematics courses
    - concurrent enrollment in college for courses beyond the high school curriculum
    - exploration activities interrelating mathematics with other disciplines and careers
    - access to special elementary and secondary programs such as those offered by The Johns Hopkins University

Science

- Awareness of applications of scientific principles in the real world be increased through involvement with local industry, business, governmental agencies, and people working in science related jobs
- A minimum of 45 minutes per day be allocated to science instruction in grades 4 through 6
- The use of manipulatives and the scientific process approach to learning in grades K through 3 be emphasized

Social Studies

- The use of existing gifted/talented social studies curricula be increased with special emphasis on student identification of original problems and selection of appropriate methods of investigation
- Teacher training be provided in order to facilitate:
    - infusion of a futuristic perspective within existing social studies curricula
    - development of student leadership and decision-making skills

- Gifted/talented students be encouraged to enroll in International Area Studies as a secondary elective, to participate in the U.S. Naval Academy Foreign Affairs Conference, and to attend the Editor's Seminar Program

- A humanities course be developed as a secondary elective for gifted/talented students

- A minimum of 45 minutes per day be allocated to social studies instruction in grades 4 through 6

- Writing and critical reading processes be emphasized in advanced social studies content at both elementary and secondary school levels

Visual and Performing Arts

- The opportunities be increased for gifted/talented students in dance, drama, music, and the visual arts

- Arts instruction be approached from a cognitive standpoint with concomitant skill development

- Practicing artists be brought in to lead students in a variety of exploratory activities

- Arts offerings be increased in the Extended Program of Learning Opportunities for Research and Enrichment (EXPLORE)

- All-county music festivals be expanded to provide for permanent groups of talented musicians within a community

- Additional avenues be created for students to display their talents such as regional performances and special art exhibits

Foreign Languages

- Language experiences be provided to elementary school students on a continuing basis

- Middle/junior high school programs providing language experiences and courses in selected languages be maintained and enriched

- More foreign language courses be infused into EXPLORE

- Foreign language programs be established through which advanced students:

  - can receive instruction in languages other than the traditional French, Spanish, and German

  - can become bilinguals

Adjunct Programs

- A mentorship program be established that addresses all disciplines and involves a wide variety of community resources

- County participation in OM Creative Problem Solving competitions be continued
- Tuition-free gifted/talented course offerings at Maryland Hall be augmented to include students from all grade levels
- Current adjunct offerings be updated to maintain program vitality and relevance to evolving needs

General Curriculum

- An emphasis on critical and creative thinking be maintained by focusing on:
  - problem solving methods
  - research techniques
  - open-ended tasks
  - real-world applications
  - broad-based issues and themes
  - inductive and deductive processes
  - theoretical bases underlying facts, opinions, and principles

Teacher Selection

- Teachers of gifted/talented students be required to:
  - demonstrate an advanced level of knowledge in their field
  - acquire knowledge and skills relative to teaching gifted/talented students through:
    - the county workshop series on gifted/talented education
    - the Gifted/Talented Professional Development Center (secondary school teachers)
    - the Program of Student Instruction/Staff Development (elementary school teachers)
    - coursework at a college or university (a minimum of 3 credits in gifted/talented education)
- Teachers be sought out who:
  - are enthusiastic about and highly competent in their chosen discipline
  - can accept and nurture the abilities and creativity of gifted/talented children

Staffing

- Schools' staff allocations be increased to ensure full implementation of programs developed for gifted/talented students:
    - Advanced courses in the secondary schools require a differentiated staffing pattern to compensate for small class sizes they inevitably create.
    - Additional teachers are needed to staff the resource room model recommended for grades K through 3.
    - Foreign language instructors for elementary schools are required to staff early language experience programs.
    - Laboratory aides are needed for secondary school science programs to assist with preparation, equipment, and student research projects.
- G/T/AP central office staff be expanded to include:
    - additional resource teachers for the SI/SD program in order that elementary schools receive services on an annual basis
    - a counselor to implement and maintain counseling services for students and parents, mentorships, liaisons with colleges for concurrent and early enrollments, and support services for school counselors

Staff Development

- G/T/AP staff development programs be updated to carry out training requisite to successful program implementation:
    - the workshop series providing general and content-specific instruction on teaching gifted/talented students, K-12
    - the Gifted/Talented Professional Development Center providing in-depth training and follow-up services for secondary school teachers, counselors, and administrators
    - the Program of Student Instruction/Staff Development for Elementary Schools (SI/SD) providing extensive, long term training and coaching to elementary school teachers

Program Management

- Support services be provided for advanced students participating in special programs (e.g., concurrent college enrollment, the Center for the Advancement of Academically Talented Youth at The Johns Hopkins University and enrichment classes at Towson State) outside the school system
- Quality points for grade point averages awarded for successful completion of advanced programs of study in grades 9 through 12 be raised
- At least one double laboratory period per week be scheduled for College Board Advanced Placement science courses

- The variability in teacher schedules be reduced with respect to the ability levels they must address. In particular, a science teacher assigned advanced courses cannot be expected to maintain the sophisticated laboratory activities required if also assigned classes designated as below average for whom, even with major adjustments, the labs would not be appropriate.
- Teachers of gifted/talented students be provided sufficient planning time to meet the rigors of the programs they are charged with implementing
- Newly developed programs be field tested in selected schools prior to countywide implementation
- The liaison with Maryland Hall for the Creative Arts be improved

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Gifted/talented students will acquire knowledge and skills in keeping with their abilities and interests.
- Students will be identified reliably for advanced programs.
- Students' abilities will be nurtured throughout their school careers.
- Students will become problem finders as well as problem solvers.
- Students will be provided increased opportunities in the visual and performing arts.
- Students will receive a variety of services, including counseling, that support their personal quests for excellence both inside and outside school.

PROGRAM AREA: GRANTS

PRESENT STATUS

The Office of Grant Programs acts as a liaison with the federal and state government and private funding agencies for the school system. A listing of the grants received in FY86 are found on the next page. Most of the grants are administered by the various directors and/or coordinators of the area to which the grant pertains. The grant program coordinator coordinates the planning, implementation, and evaluation of federally funded projects with the exception of Chapter 1 Special Education and Vocational Education. In addition, the coordinator administers the Chapter 2 Educational Consolidation and Improvement Block Grants.

RESEARCH

A review of the literature revealed the following findings:

- At the Federal level emphasis has been on narrowing program options and consolidating legislation.

RESTRICTED FUNDS - F.Y. 86

I. Formula and/or use of a Pass Through Process for program funding:

Adult Basic	106,505
Compensatory (State)	455,536
Chapter I	3,382,623
Refugee Children/Transition Program	8,577
Age 0-2	269,876
Pass Through (Handicapped)	2,056,455
P.L. 89-313	37,129
Educational Consoldation and Improvements/ Chapter II Block Grants	610,513
Vocational Education/State Categorial and Regular	503,524
*Basic Skills Facilitator	21,000

II. Competitive and/or trust and agency:

Art Education	454
Computer Thinking	1,387
Computer Language and Learning Improvement	5,000
Pre-Kindergarten	206,143
Students' Educational & Career Planning/ Assisting Parents	1,899
Enhancing Techniques/Multi-Cultural Regulations	2,000
Mathematics Project	27,383
Music Curriculum	4,000
Music Curricular Framework	1,182
Elementary Science Activities	4,000
Elementary Science Curriculum Development	500
Science Project	27,383
Maryland Historical Society/ Field Trips	800
LRE Social Skills Comm. Curriculum	1,200
CSPD Inservice	33,708
Less Restrictive Environment	4,000
CIEP Project	4,300
Learning Disabilities	5,000
Preschool Incentive	51,221
Vocational Education - Adult	6,858
Vocational Education - Homemaking	72,062
Vocational Education - Adolescent Single Parents	20,000
Vocational Ecucation - H.E. Community Outreach for traditionally Underserved Populations	9,287
Vocational Education/Disadvantaged	60,865
JTPA/Developing the Competitive Edge	53,841
Vocational Education/Writing Assistance Program	20,667
*Disruptive Youth	156,461
Classroom Management Workshop	1,125
Improving Teacher Effectiveness	500
SITIP	3,000
*Superintendent's Retreat	7,600
*Early Childhood Productions	1,428
*JTPA/YETP (Includes Summer Program)	528,952
*Social Studies Curriculum/Staff Development	14,468
*Maryland External Diploma Program	90,415
*Data Center Funding	444,000
*Suspension Data	18,000
*Innovative and Creative Teaching	500
*Purposeful Instructional Decision Making	28,621
*Learning to Think	22,750
*Water/Boating Safety	22,783
*School Psychologist Skill Development	1,000

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*An agreement between the granting agency and the school system to financially administer the funds for the granting agency. The school system may be a partial recipient of the services provided by the grant or may not receive services provided by the grant.

- Most of the large grant programs are now administered by state agencies.
- The Federal share of funding for the education programs has been reduced over the last five years.
- There will be increased emphasis on state and local control of education programs.
- The Department of Education, the National Science Foundation, and the National Endowment for the Humanities are placing a greater emphasis on programs to attract, train, and retrain qualified teachers at all levels; particularly in the critical disciplines of math, science, and special education.
- Much of the new funding initiatives available to schools over the next five years will be aimed at improving the learning environment in classrooms.

RECOMMENDATION

The present trend toward the decreasing of federal responsibility for educational programs will require increased state and local financial responsibility. Local school systems will need to adopt a more comprehensive and systematic planning approach in identifying, with appropriate justification, educational needs that can be addressed through the supplementary funding of grant programs.

It is recommended that:

> **A COMPREHENSIVE PLANNING APPROACH BE DEVELOPED FOR GRANT PROGRAMS THAT WILL PROVIDE SUPPLEMENTARY FUNDS TO MEET EDUCATIONAL PROGRAM NEEDS**

In order to implement the above recommendation, it is proposed that:

- The school system receive all federal and state monies for which it qualifies
- Education funding foundations be researched and, where appropriate, proposals written to secure funds
- The school system become more active in the legislative process as an advocate for state and federal funding of education

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The school system will receive all federal and state discretionary program monies for which it qualifies.
- Some of the additional special needs of students will continue to be met through grant programs.
- The number and types of grants received will increase.
- The base of funding for grant programs will be widened beyond the federal and state government.

- Educational programs will be enhanced.

PROGRAM AREA: GUIDANCE

PRESENT STATUS

In 1980 the school system's guidance personnel began to make the shift from a program which provided guidance and counseling services to a grade K-12 competency-based program. The competency-based guidance program which is in existence today consists of 12 elements: a statement of purpose; a philosophy for implementation; four goals with related student competencies; a management system to achieve the desired results; and a Guidance Advisory Council whose function is to audit the program results and make recommendations to the Board on priorities. Following the Ten-Year Plan, by 1987 the competency-based program as approved by the Board of Education will be implemented in all schools that have one or more counselors.

The responsibility for implementing the program lies with a guidance specialist and a program coordinator assigned to the central office and with 140 school-based counselors. The school-based counselors include 51 assigned to 17 middle/junior high schools, 57 assigned to 13 senior high schools, 3 assigned to 2 vocational-technical schools, 1 assigned to special education students, and 30 assigned to 59 elementary schools. Sixteen elementary schools are operating without a counselor. The counselors have an average of 14 years experience in the county public schools ranging from just beginning to 36 years. Of the 142 counselors, there are 88 females and 54 males; 116 are white, 25 are black, and 1 is Pakistani. All have at least a master's degree.

The approved management system mandates that all counselors have a results agreement and related plans approved by their principals. The system also mandates that each counselor submit a progress report on results achieved on January 1 of each school year and a final report by June 1 of each school year. These data are tabulated, reviewed by the Guidance Advisory Council, and submitted to the Board with recommendations. A budget request is submitted each year based upon these recommendations.

The purpose and goals of the guidance program are undergoing evaluation during the 1986-87 school year. Because of the new focus on the results, or competency-based approach to guidance, a program evaluation design and related strategies have been developed. The strategies call for student and parent interviews, questionnaires, and follow-up data-collection activities. The results will, in turn, be presented to the appropriate administrators, to the Guidance Advisory Council, and to the Board.

In the paradigm shift from providing guidance services to making sure that all students acquire specific competencies (knowledge, attitudes, and skills), the counselors at the middle/junior high school level have made the transition. Because the elementary counselors began with the results approach, the shift has been minor. Counselors at the senior high school level, however, have reported that their ability to implement the competency-based program has been hampered by what they perceive as non-counseling functions. Included among these are cafeteria duty, hall patrol, and bus monitoring, as well as paper work associated with scheduling of students.

The program is characterized by a strong inservice element whereby counselors can renew skills as well as acquire new competencies in state-of-the-art guidance practices.

Inservice topics are determined by the Coordinator of Guidance, utilizing needs data as well as state and national issues impacting the guidance profession and program. Representative inservice activities are Brain Growth and Periodization and Its Implication for Middle School Educators, Trends in Multi-cultural Counseling, Learning Styles, College Shock, Suicide, Social Issues and Their Impact on Schools, and Studying and Test-taking.

Believing that quality guidance can best be provided to students, parents, and faculty members by competent professionals, the inservice activities are open to other pupil services personnel, central office staff, administrators, members of the Guidance Advisory Council, and representatives from the private and parochial schools.

RESEARCH

A review of the literature produced the following findings:

- There is a paradigm shift from a guidance program that is based on providing guaranteed services to one that is based on providing guaranteed results.
    - The need for a shift in emphasis came about because of a lack of evidence of visible student results.
    - A results, or competency-based, guidance program approach presents a means to reach all students and to guarantee that all students will acquire desired competencies (i.e., knowledge, attitudes, and skills).
- Society expects schools to address a large number of social concerns such as adolescent suicide, child abuse, teenage pregnancy, drug and alcohol abuse, changes in home environments, and interpersonal relationships.
    - There has been a steady increase in the number of recorded youth suicides, now the second leading cause of death among young adults. According to one source, 11% of high school students report that they have made at least one suicide attempt. In addition, students indicate that others turn to them for help.
    - There have been numerous changes in family constellations. The current trend indicates that over 65% of all married women work and that over half of all marriages end in divorce. Children go home to empty houses and many times to a one-parent situation. Along with these changes has come a parallel decline in church membership leaving the public school as the primary institution in which youth can be guaranteed social structure.
    - At the national level approximately one out of four students leave high school prior to graduation. In Anne Arundel County Public Schools approximately one out of six students leave high school prior to graduation. The characteristics of dropouts and potential dropouts are visible in the early years of school. With the increase of academic requirements coupled with societal changes, it is projected that the numbers of students dropping out might increase unless something is done in a prevention mode at a much earlier date in the students' lives.
    - Alcohol and drug abuse continues to be a problem in society. Substance abuse affects not only the users but school life in general with classroom

interruptions, absences, and unpreparedness. Drugs are sold at schools and used at schools; thus, it becomes a school problem and should be handled by counselors, as well as by others.

  - The information on "High Tech-High Touch" trends is very clear. While there is a revolution in the high rate of technical information processing, there is an equal increase in the necessity for high touch or interpersonal situations. Accompanying this phenomenon is a related necessity for highly visible professional persons (counselors) to be available for all students, parents, and staff on an ongoing basis.

  - There has been a steady increase in the number of children born to children under the age of 18. The problem is very severe in innercities. Although the rate of teenage pregnancies in Anne Arundel County is lower than that of highly-populated areas, it is still a major concern to the schools and other social institutions.

  - A major contributor to the problems of schooling is the disarticulation of American society. This has been caused in part by the generation gap existing between the worlds of youth and adults, in part by the heavy concentration by school personnel on the college-bound student, in part by other demands on school personnel such as raising test scores and setting up alternative programs.

- Students are experiencing increased academic pressures.

  - There is an increase in academic pressure on students caused by increased expectations and changes in graduation requirements. These increases suggest that students must learn to learn as soon as possible in their education and that their parents must understand how to create a learning environment that facilitates students' learning styles.

  - The prevailing emphasis on excellence in education which has led to the redesigning of content required for graduation has also resulted in pressure on students to make earlier decisions regarding potential careers and occupations. Yet nationwide there is a void in the curriculum through which students are taught to make decisions and plans and to act on those decisions and implement the plans. In Anne Arundel County, there are a number of such activities being implemented in many schools. However, there has been no assurance that all students will acquire the personal problem solving competencies necessary to handle and reduce stress related to school, family, and friends.

- There is a continuing demand for increased efficiency using the same or fewer resources which may mean a reallocation of resources determined by delineated needs and predetermined results rather than according to per-pupil ratio.

- Keeping the Options Open:The 1986 Final Report of the Commission on Precollege Guidance and Counseling sponsored by the College Entrance Examination Board contained several recommendations for school guidance programs. Included among these recommendations were the following:

  - Guidance programs should inform and involve parents and other members of the family who are influential in the choices, plans, decisions, and learning activities of the student.

- Collaboration among schools, community agencies, colleges, business and other community resources should be strengthened in order to enhance services available to students.

- Guidance programs and counseling should be provided during the early and middle years of schooling, especially for students who have not been well-served by schools.

- School principals should emphasize the importance of the guidance counselor as a monitor and promoter of student potential, as well as a coordinator of the school's guidance plan.

RECOMMENDATION

The problems and pressures facing today's school age children and youth are not likely to decrease in number or severity in the near future. In fact, predictions are that at least some of them will increase. A competency-based, results oriented guidance program can address these student needs and, thus, will make a major contribution to excellence in education.

It is recommended that:

> **THE COMPETENCY-BASED GUIDANCE PROGRAM BE FULLY IMPLEMENTED IN ALL SCHOOLS, K-12**

In order to implement the above recommendation, it is proposed that:

- A guidance curriculum be developed for all students kindergarten through grade 12 that will guarantee that all students will acquire the skills required to be successful in learning, working, relating effectively to others, and using leisure time appropriately

- The guidance center hours be extended and/or staggered so that services are available before and after traditional working hours in order to provide greater accessibility to working parents

- The guidance program resources be expanded to include a more active and systematic contribution of teachers, local business persons, and local business resources. School activities/learning activities might include an expanded internship program, community-based instruction, or shadowing experiences.

- A career ladder for guidance program personnel be developed and implemented so that available resources can be optimally used to assist all students in acquiring specific competencies

- Resources be allocated according to established needs, not necessarily to a per-pupil ratio

- Counselors be relieved of non-guidance duties

- Programs be implemented at an early stage for potentially at-risk students

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will acquire competencies in learning, in working, in relating to others, and in using leisure time appropriately.
- Students will acquire and be better able to use knowledge and skills in utilizing available resources to prepare for higher education or employment or a combination of the two.
- There will be a decrease in the number of socially unacceptable and/or illegal behaviors such as drug and alcohol abuse, teenage pregnancy, child abuse, truancy, school failure, dropping out, and vandalism.
- Human and material resources will be used more appropriately and efficiently.

PROGRAM AREA: HEALTH EDUCATION

PRESENT STATUS

Recently the Board of Education took two actions which give health education a greater emphasis. In the spring of 1985, the Board adopted a K-12 Scope and Sequence in Health Education which created a framework for developing a health curriculum. In 1986, a staff position for a health issues program coordinator was approved. The program coordinator is responsible for developing, implementing, and evaluating all facets of health and safety related policies, procedures, program, instructional materials, training, and related activities affecting the health and safety of students and all employees in the school system. A teacher specialist in health and drug education assists with these job responsibilities. Plans for a comprehensive K-12 health education curriculum call for full implementation by 1992.

Currently health curricula in the elementary and middle/junior school is integrated in the social studies, physical education, science and language arts programs. At the senior high school level, four electives - health education, sports medicine, drug education, home economics, and family life and human development - are offered.

The Alternative Drug Program, a course of instruction and counseling, is required as a condition of reinstatement for students who have been suspended because of alcohol and other drug offenses. The student's parent (or guardian) is also required to participate in the counseling component. In addition, the program may be taken by students and/or their parents on a volunteer basis. This program has been ongoing since January 1980 and has been effective in reducing the number of drug and alcohol cases from 507 per year in 1979-80 to 202 in 1985-86. This program was recognized in the U.S. Department of Education's publication What Works, Schools Without Drugs, 1986.

Presently, there are thirteen teachers certified to teach health education. Only one of these health educators is teaching health education courses on a full time basis.

Professional improvement workshops in the areas of drug education, family life and human development, and wellness have been designed for and offered to teachers, administrators, guidance counselors, and central office personnel. In addition, school administrators, clerical personnel, bus drivers, food service staff members, and other school support personnel are receiving training through the American Red Cross Standard First Aid and Cardio-Pulmonary Resuscitation (CPR) courses. In an effort to promote healthy lifestyles, seminars on a variety of health issues (e.g., AIDS, asbestosis, herpes) were initiated in January 1986. The seminars will be offered on a continuing basis. They are open to all employees and some of them will be open to the community.

In order to foster positive attitudes and behaviors, specific student goals have been developed. All students should be able to:

- Utilize factual content to build beneficial health attitudes, knowledge, information, and practices
- Develop preventive attitudes in dealing with health and safety aspects of daily life
- Identify evaluation criteria for selecting health services, practices, and products
- Understand health maintenance as a lifelong process fostered by responsible behavior
- Understand the interdependence of physical, mental, and social factors for good health

A data base for the evaluation of the Health Education Program was initiated in April 1985 when the Board of Education approved a drug survey instrument and authorized its implementation in May of the same year. This survey, administered in alternating years, will be modified to evaluate new health program efforts. Data are also being collected on the effectiveness of the Personal Safety Program.

Optimal programs in health promotion and health education can only be achieved in coordination with school health services and within a healthy school environment. Within this context, a policy, administrative regulations, and guidelines concerning communicable diseases were developed and approved by the Board of Education in January 1986. This represents the first formal action which began the implementation of programs that coordinate health education, health services, and environmental health issues.

RESEARCH

A review of the literature produced the following findings:

- Health education courses should be taught by certified health educators.
- Program effectiveness is strongly related to full implementation with distinct, rather than integrated, health programs.
- Local health officials should be incorporated into the planning, implementation, and evaluation of school health programs.
- In order to effect positive outcomes, health education must be perceived as a need by the total adult community.

- The school health education program should encourage family and community involvement.

- Ongoing inservice helps to maintain an effective health program.

- A school health program should be reinforced by a healthy school environment.

- Regular evaluation and continuous assessment is necessary to evaluate the program.

- School health programs should address national and local health issues.

- Changes in attitudes and behaviors are significantly enhanced only after substantial hours of health instruction.

- Initial implementation costs may be expensive, but the long term benefits of a program far outweigh initial costs.

- Staff should be role models who reflect healthy lifestyles.

- Good health enhances the capabilities of students.

RECOMMENDATION

If students are to make sound decisions related to personal, family, and community health, the school system must provide and promote a planned and systematic health program which includes health education and health services within a healthy school environment. Although health education is currently infused with other disciplines, research indicates that health education programs are more successful when the content is taught as a separate subject.

It is recommended that:

> **A COMPREHENSIVE HEALTH EDUCATION PROGRAM FOR ALL STUDENTS, K-12; A WELLNESS PROGRAM FOR ALL STUDENTS AND EMPLOYEES; AND A HEALTH SERVICES PROGRAM FOR STUDENTS AND EMPLOYEES BE DEVELOPED AND IMPLEMENTED**

In order to implement the above recommendation, it is proposed that:

- At least one certified health educator be provided for each school

- Present staff be identified and provided opportunities (e.g, released time and/or tuition reimbursement) to become certified in health education. This will enhance program implementation and help to ensure one certified health educator for every school.

- Health programs be implemented with distinct course offerings at both the elementary and secondary school level

- A health education credit be required for high school graduation

- A one semester health education course be required during middle/junior high school

- The networking among the public school system and community health agencies be expanded

- An advisory committee be established to assist in the planning, implementing, and evaluating of school health programs. The committee should be comprised of representatives from the school system and from public and private health related organizations.

- Adult health education programs be developed in order to make the public aware of the contribution health education can make toward the establishment of a healthy lifestyle

- Strategies be specifically designed and implemented to increase family involvement

- The wellness needs of students and employees be assessed and appropriate wellness programs and/or facilities be designed which will provide opportunities and encouragement for students and employees to participate in these programs

- The county school environments be assessed as they pertain to health and that modifications in school environments be made in order to conform to health standards and practices

- Central office staff support be increased and expanded commensurate with the developing needs of the health education program. Examples of the types of support personnel might be doctors, paramedics, nurses, drug rehabilitation counselors, medical students, and fitness experts.

- The relationship and role of services provided by the county health department be reevaluated in order to determine if the school system's needs are being met

- Standards for school health rooms be developed and implemented

- Evaluative measures to assess program goals and objectives be developed and implemented

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students and adults will develop sufficient knowledge about health to make informed decisions and to adopt preventive healthy lifestyles.

- Employees will learn what healthy behavior is and will put it into daily practice. This will result in providing role models that will help motivate students toward healthy behavior.

- Wellness programs will result in better health and morale for all employees and will lower insurance costs for the school system.

- There will be increased productivity and lower absenteeism of students and employees.

- All students and employees will have access to appropriate health services at the system's expense. These would include diagnostic screening for blood pressure, cholesterol, and scoliosis; tests of vision, hearing, and fitness; medical diagnostic tests; fitness courses and facilities; and school nurses in all schools.

PROGRAM AREA: INSTRUCTION
CONSIDERATION: DIRECTORS

PRESENT STATUS

The Department of Instruction is headed by an Assistant Superintendent for Instruction. All elements of the school system's instructional program come under the administration and supervision of the department. The Department of Instruction administers policies and procedures for the organization, administration, supervision, and staffing of the schools. Personnel throughout the department develop and implement curricula and programs; prepare and maintain financial documents; supervise and evaluate instructional personnel; and implement processes and procedures for purchasing equipment, supplies and materials of instruction. Throughout the department, staff from the various divisions and offices are responsible for providing leadership to school personnel and liaison with state and federal offices, as well as with business and community groups.

The Assistant Superintendent for Instruction works closely with directors and an administrative assistant to ensure effective operation of schools, implementation of curricula, and effective operation of all aspects of instructional programs.

The Department of Instruction consists of seven divisions and provides programming from pre-kindergarten to adult, covering all aspects of a total education system.

The Division of School Administration is comprised of six school directors. Four directors for elementary schools, one director for middle level schools, and one director for senior high schools. Their primary function is to direct the implementation of the instructional program while being integrally involved in the administrative functions of all schools in their areas. In addition to the instructional supervision and evaluation, the directors are actively involved in the interpretation of policies and procedures which include the overseeing of fiscal spending and budget preparation, and the development and implementation of inservice programs. The directors are responsible for the evaluation of each principal; for assisting with the training and evaluation of assistant principals and administrative trainees; and for assisting with the evaluation of teachers, both tenured and non-tenured.

The Division of Vocational Education under the leadership of a director, provides for the planning and supervision of programs and curricula in business education and data processing, home economics, industrial arts/technology, trades and industry, cooperative work experience, vocational support services and vocational evaluation. The director works cooperatively with other directors and extensively with representatives of the business and industrial community and other county agencies. The director supervises the activities of the principals of the two vocational-technical centers, and five coordinators: Business Education/Data Processing, Home Economics, Industrial Arts/Technology, Trades and Industry, and Cooperative Work Experience.

The Division of Special Education, under the leadership of a director, provides program and curricula in parent-infant, pre-school, elementary, secondary and special center programs. This director works cooperatively with all instructional and special area directors and with outside agencies at county, state, and federal levels. Parent communication is an integral dimension of this assignment. The director supervises the activities of the principals of four special centers, and four coordinators: Program; Home and Hospital Instruction; Speech and Hearing; and Admission, Review and Dismissal Specialist.

The Division of Curriculum under the leadership of an executive director, is primarily responsible for developing programs and assisting with the implementation and evaluation of courses for most of the instructional areas within the school system. The program coordinators and teacher specialists under the jurisdiction of the Division of Curriculum continue to strive for excellence in their respective primary areas of responsibility, and work cooperatively on projects that cut across areas of responsibility. They participate in the informal and formal evaluations of instructional programs conducted on a continuous basis.

The Division of Media Services, under the leadership of a director, provides a variety of services. They include evaluation, selection, acquisition, and distribution of library materials, materials of instruction, and equipment. Additional services include development of school library media programs and resource support. Professional library services are provided to all staff members and interested citizens. Video, cable, and instructional television planning and implementation are regular services to all schools. The Media Production Center produces media materials for schools, administrative staff, and central office personnel. Finally, maintenance and repair of audiovisual equipment and microcomputer hardware is provided daily. Emphasis is placed on using the latest technology and management techniques to enhance the effectiveness of library media services.

The Division of Pupil Services, under the leadership of a director, is responsible for providing a wide range of pupil and psychological services to help students adjust and be successful in school. The personnel in Pupil Services participate in the admission, review, and dismissal process for special education students. Efforts in the guidance programs are directed toward assessing the needs of individual students and providing assistance in meeting these needs.

The Division of Supplemental Programs, under the direction of the administrative assistant, initiates and maintains programs in Adult Education, Chapter 1, Adult Basic Education, Evening High Schools, Summer School, Textbook Inventory, Youth Work Experience, and Outdoor Education. This division is also responsible for the coordination of activities related to student affairs which include the operation of student councils and the Chesapeake Regional Association of Student Councils.

RESEARCH

A review of the literature produced the following findings:

- The most important characteristics of effective schools are strong instructional leadership, a safe and orderly climate, schoolwide emphasis in basic skills, high teacher expectations for student achievement, and continuous assessment of pupil progress.
- Successful principals establish policies that create an orderly environment and support effective instruction.
- Frequent and systematic monitoring of students' progress helps students, parents,

teachers, administrators, and policymakers identify strengths and weaknesses in learning and instruction.

- Effective schools work with the community, utilize their resources, and are responsive to identified needs.
- Teachers welcome professional suggestions about improving their work.
- There is a positive relationship between smaller class size and student achievement.
- There is a shortage of qualified school administrators.
- An effective school is one which provides instructional opportunities to meet the social, physical, emotional, and academic needs of all students.

RECOMMENDATION

An informational and technological society is itself a force of irrevocable change. As such, it has broad implications for education and school leaders. Trends and pressures likely to affect education in an increasingly significant manner include the following: changing lifestyles; institutional structures; training; technological change; political developments; changes in the role of private enterprise; leisure; social stratification and educational discrimination; the aging society; the changing nature of jobs and work; and the expansion of knowledge. Challenges facing educational leaders include purpose setting, program adaptation, effective use of electronic technology, and ensuring equal educational opportunity and chances for self-realization.

Before proceeding with any change, there should be a clear picture of exactly what change is desired, why the change is needed, how the decision was formulated, and where the support base for the change lies.

To invite change, one must first build a climate for change -- a psychological atmosphere that is conducive to change. One must also encourage new ideas and ensure that resources are available. Administrators must have the opportunity and willingness to try out new ideas. At the same time, they must be able to convey the fact that they do not have all the answers, but that they can be instrumental in helping to create and nurture a climate for change. Trust encourages the sharing of ideas and the desire for change. Exploring potential areas of change can begin with discussion of the obstacles that keep educators from doing their jobs effectively. In a large school system, countywide positions of educational leadership are needed to systematically address instructional challenges.

It is recommended that:

INSTRUCTIONAL LEADERSHIP BE PROVIDED BY DIRECTORS OF INSTRUCTION

In order to implement the above recommendation, it is proposed that directors of instruction:

- Interpret and communicate the purposes/goals of the school system and assist schools in establishing their purposes and priorities
- Ensure optimum student learning

- Implement differentiated staffing to assure quality instructional programs for all students

- Utilize technology to develop a more responsive student evaluation system

- Identify potential school principals and provide leadership training to present principals

- Use technology to interact with school administrators, data bases, and information networks to provide responsive administrative and instructional services

- Use equity and demographic data to determine educational curriculum

- Use equity and demographic information to determine the best organizational structure of the school system for delivering instructional services

- Implement programs and strategies which provide students the skills necessary to live in a technological and changing world

- Develop community and business liaison programs which provide child care, recreational, counseling, and continuing education services for school neighborhoods

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Safe and orderly learning climates will be provided for all students.

- Basic skills will be emphasized.

- Teachers will have high expectations for all students.

- Pupil progress will be assessed on a continuous basis.

- Opportunities for the development and implementation of educational leadership will be provided.

- Schools will have clear goals.

- Community involvement will be enhanced.

- Technology will be used to enhance the effectiveness of instruction.

- Equitable educational opportunities will be provided for all students.

- Human relations will be enhanced.

- School attendance will be improved.

- Proactive leadership will be provided to ensure that all students reach their maximum potential.

CONSIDERATION: ELEMENTARY SCHOOLS

PRESENT STATUS

There are 74 public elementary schools in the county. They range in enrollment from Ferndale with 74 students, located in the northern part of the county to Broadneck with 806 students located on the Broadneck Peninsula. The average enrollment is slightly over 400. Of the 74 schools, 16 are open space facilities, 55 traditional facilities, and 3 modified facilities.

The instructional organization within the schools varies. Some schools have only self-contained classes while others have semi-departmental arrangements. Such departmental arrangements are usually in the upper elementary grades. In the typical departmental arrangement each teacher has responsibility for languge arts and then assumes responsibility for another program area (i.e., math, science, or social studies). Team teaching is found in some schools. Individual student needs are often provided for through flexible scheduling.

The staffing ratio for the three elementary levels and the special areas are shown in the following chart:

Elementary Staffing Ratio

Level/Area	Ratio
Kindergarten	22 to 1
1-3 (Primary)	25 to 1
4-6 (Intermediate)	28 to 1
Primary Combination Grades	23 to 1
Intermediate Combination Grades	26 to 1
Physical Education	1 full time teacher for every 15 classes
Music	1 full time teacher for every 16-20 classes
Art	1 full time teacher for every 20 classes

Level IV special education students are mainstreamed into physical education, music, and art classes.

Of the 1,612.3 elementary teachers in the system in 1985-86, females numbered 1,438.2 and males numbered 174.1. The ratio of female teachers to male teachers at the elementary school is approximately 9 to 1. The percentage of minority elementary teachers is 17.7%. In 1986-87, of the 74 elementary principals, 38 were male, 36 were female, 12 were minority.

The suggested time allotments depicted in the following tables are the guidelines for elementary instruction.

Suggested Time Allotments: Primary Grades

Instructional Area	Minutes per Week	
Language Arts		740
Reading	450	
Handwriting	80	
Writing/Composition	80	
Spelling	80	
Literature	50	
Mathematics		175
Science		140
Social Studies		120
Music		60
Art		60
Physical Education		60
	Total	1,355

Suggested Time Allotments: Intermediate Grades

Instructional Area	Minutes per Week	
Language Arts		600
Reading	300	
Writing/Composition	120	
Spelling	80	
Handwriting	40	
Literature	60	
Mathematics		195
Science		195
Social Studies		195
Music		60
Art		60
Physical Education		60
	Total	1,365

Beginning in June 1987, the elementary school directors plan to revise the above time allotments.

In addition to general music, students in grade three may begin strings instruction, scheduled for two 45-minute periods per week or starting in grade four, students may choose to take instrumental and/or choral instruction in addition to general music. Instrumental music is recommended for two 45-minute periods per week; choral music for two 30-minute periods per week. These are pull-out programs with students taken out of regular classes on a rotating basis. Before and after school time is also utilized for some students.

RESEARCH

A review of the literature produced the following findings:

- While the home is the first most influential institution in a child's life, the elementary school is the second most influential.
- More parents are becoming actively involved in their children's education.
- Elementary children whose parents are actively involved in their education experience more success at school.
- The more a young child has been taught or interacted with, the greater the child's learning capacity.
- In the early 1900s schools were organized like factories in order to socialize people to work in factories. They are still organized that way today.
- The traditional elementary school delivery system is not adequate for the information age.
- School systems are moving away from the open space concept toward a more closed organization of space. Room dividers, bookcases, portable, and sometimes even permanent walls are being used to partition off open spaces.
- Although very little has been written concerning the advantages and disadvantages of self-contained versus departmentalized elementary classrooms, it appears in actual practice the trend is toward self-contained classroom organization.
- There is a nationwide trend toward K-5 elementary schools.
- Statewide enrollment in grades K-6 is predicted to increase by almost 11% between 1985-1989.
- The K-5 enrollment in Anne Arundel County is projected to increase from 29,770 in 1986 to 33,110 in 1995.
- Nationally, pupil teacher ratios in elementary and secondary schools declined from 27.8 pupils per teacher in 1950 to 18.1 pupils per teacher in 1985.
- The average class size nationally is 21 students per class or section.

- The early primary grades (K-3) show the most promising effects of small classes on pupil learning with the effects of smaller classes on improved student learning decreasing as grade level increases.

- Smaller classes tend to promote the use of more desirable teacher practices.

- Economically disadvantaged students and students from ethnic minority groups achieve more academically in smaller classes.

- Cooperative learning, personalized instruction and adaptive instruction are five to six times more effective in promoting learning than is class size.

- Almost all students can master the learning tasks presented in the elementary grades if they are given sufficient time, along with appropriate resources and instruction.

- A teacher's thorough knowledge of subject matter has a positive effect on student achievement.

- The basics of the year 2000 will not be the basics of 1987.

- The new skills necessary for the information age are thinking, learning, and creating.

- Thinking - the ability to synthesize and make generalizations, to divide into categories, to draw inferences, to distinguish between fact and opinion, to put facts in order, and to analyze a problem - is a most fundamental and important skill which can be taught.

- Creativity will be increasingly valued in the new information-rich, decentralized global society and it can be taught.

- Students are more curious, engaged, and stimulated to learn when they are taught to learn with all their senses.

- The role of memorization in learning is decreasing due to the increased use of computers.

- The use of computer assisted instruction may require school systems to rethink teacher pupil ratios.

- Music may be a more powerful learning force than speech.

- Learning how to learn requires self-knowledge.

- Grade equivalent scores at the 3rd and 5th grade level on the California Achievement Test have risen steadily since 1981-82. This is true at both the state and local county level.

RECOMMENDATION

The elementary school experience must provide a strong foundation for further education and for life in the 21st century. Today's kindergarteners will be graduating from high school in 2000. These students will face a world far different from the one they entered in the early 1980s. The information age will have a great impact on them. One primary goal of the elementary school is to build for every child a foundation of basic skills which will be used for further education. Because there is no way to know specifically what these students will need to know, nor is there any way to teach them all they need to know, the elementry school must in addition to the traditional basics of reading, writing, and mathematics, teach students how to think, how to learn, and how to create. In order to do this and to still provide the nurturing, caring, and supportive atmosphere necessary for a child's emotional and social growth, the elementary school must carefully examine and restructure, if necessary, its delivery system, curriculum, time allotment, length of day and instructional organization.

It is recommended that:

> **A DELIVERY SYSTEM, CURRICULUM, AND ORGANIZATIONAL STRUCTURE BE DEVELOPED AND IMPLEMENTED WHICH WILL ADEQUATELY PREPARE STUDENTS TO FUNCTION SUCCESSFULLY IN THE INFORMATION AGE**

In order to implement the above recommendation, it is proposed that:

- All elementary schools house grades K-5
- Principals and staff be given the flexibility and option to make decisions for organization within the school based upon the strengths and needs of students and staff
- The teaching of thinking skills be an identifiable component of the curriculum
- Teachers be given inservice on the new models of learning how to learn and encouraged to use these models to teach students how to learn
- Student individuality, creativity, and ability to think for one's self be promoted in elementary curriculum
- The entire delivery system be revised to encompass computer assisted instruction in all areas of the curriculum
- Teacher pupil ratios be reassessed and determined on the basis of program need
- Organization of the school setting and time allotments reflect the needs of society, and developmental level of students
- Teaching strategies be implemented that reflect the latest research on learning theory

OUTCOMES

With adoption of the above recommendation, the following outcomes are projected:

- There will be a consistent elementary grade organization.
- Students will receive a high quality education which will meet the intellectual, physical, emotional, and social needs of the elementary child.
- Students will use thinking skills to solve problems and will be independent thinkers.

- Students will know how to learn and will be independent learners.
- Students will be creative.
- Students will use computers as a learning tool.
- Students will receive more individualized instruction.

CONSIDERATION: MIDDLE LEVEL SCHOOLS

PRESENT STATUS

The county presently has 17 middle level schools, nine middle schools and eight junior high schools. Marley Junior High, which opened in 1958 with grades 7-9, was the first middle level school. Magothy River Middle School, which opened in 1974, was the first school to house grades 6-8 and to be called a "middle school." While Brooklyn Park Junior/Senior High School houses students in grades 7 and 8, the enrollment figures are included in the senior high school statistics.

Total middle level enrollment as of September 1986 was 13,450. Southern Middle school with 532 students was the smallest and MacArthur Middle with 1,107 students was the largest. The average middle level school enrollment is approximately 792 students.

Of the 761.2 teachers at this level, 513.3 or 67.4% are female and 247.9 or 32.6% are male. Four of the 17 principals are female. Minority teachers represent 15.4% of the total. All principals are white.

Average middle level class size is 27 to 28, with most classes occurring in the range of 20 to 35 students. Middle level schools have a six period instructional day and teachers teach five of the six periods. A model of the middle level program follows:

Middle School Scheduling Model

	Required	
Language Arts	Daily	36 weeks
Mathematics	Daily	36 weeks
Social Studies	Daily	36 weeks
Unified Science	Daily	36 weeks
Art	Daily	12 weeks
Home Economics	Daily	12 weeks
Industrial Arts	Daily	12 weeks

Student Options (2 of 3)

Music, Foreign Language or Physical Education every other day for 36 weeks.

It is proposed that beginning in 1988, physical education be required of all sixth and seventh grade students while a revised foreign language program will be initiated in the seventh grade.

The constraints of a six period day are apparent in the above model. While the present model offers a student nine courses during the year, a student may not elect all subject areas, nor may students elect both vocal and instrumental music. The six period day also precludes health education and computer education as separate courses. Presently these topics are integrated into existing academic courses.

RESEARCH

A review of the literature produced the following findings:

- There is a nationwide trend toward the establishment of middle schools. The first middle school opened in Bay City, Michigan in 1950. By the mid 1960s there were 499 middle schools in 29 states and by 1977 there were over 4,000 across the nation.

- A middle school with a 6-8 grade configuration facilitates the transition between the elementary and the high school.

- Early adolescents vary widely in their stages of physical, intellectual, and social development.

- The middle school philosophy stresses the need for a curriculum that can respond to the varied developmental characteristics of the students.

- There should be a core of clearly articulated and widely disseminated brief statements which will guide individual behavior and institutional policies and practices addressing personal responsibility, the prime importance of learning and intellectual activity, and respect for diversity.

- The ideal curriculum should be learner-oriented.

- The middle school curriculum should provide for self-defined goals, individualized programs and independent areas of study.

- The key concepts of a middle school curriculum should be personalization, synthesis, exploration, team disciplinary and interdisciplinary planning and teaching, a multi-material approach, flexible scheduling and appropriate social experiences.

- Middle schools should provide students an intramural program which is consistent with the growth and development of the middle school age student.

- Many middle school principals believe that intramural sports should be emphasized more than interscholastic sports.

- Some middle schools, as well as other grade configurations, were established to relieve overcrowding in other schools.

RECOMMENDATION

Students who leave the middle/junior high schools in the next ten years will enter careers, raise families, and experience what life will offer in the third millenium. Because educators cannot begin to know what information these students will need to function successfully in that world and because they cannot teach them all they need to know, educators must teach the students how to learn and how to adjust to change. Therefore, it is essential to develop a program that incorporates a basic core curriculum which focuses on appropriate learning skills and integrates the latest technologies to the advantage of students. The curriculum must also take into consideration the varied developmental characteristics of the early adolescent and address the fact that the student at this level is different from either an elementary school student or a high school student. Also because it is desirable for students at this age to have the opportunity to explore broad interests, the school day should be structured to allow all students to experience all aspects of the curriculum.

It is recommended that:

> **MIDDLE LEVEL SCHOOL PROGRAMS BE IMPLEMENTED AND/OR ENHANCED THAT ADDRESS THE UNIQUE NEEDS OF PRE- AND EARLY ADOLESCENTS**

To implement the above recommendation it is proposed that:

- All middle level schools house grades 6 through 8
- A seven period day be implemented. This may be accomplished with minimal adjustment of the length of the school day.
- All aspects of performance be recognized and rewarded but special emphasis be placed on basic academic performance that will enhance student success in school and in personal development
- Opportunities be provided for students to achieve and demonstrate excellence in a number of different domains such as the practical and fine arts, academics, and physical development
- Opportunities for interpersonal skill development be provided
- A caring supportive environment be developed that accepts the wide range of middle level student diversity
- Access to supportive counsel regarding academic progress, adjustment to school, and personal adjustment be provided for each student
- Activities be provided that will allow students to explore their interests, aptitudes, and special talents
- The curriculum be articulated with that of the elementary school and the high school ensuring continuous developmental learning
- Curriculum content be related to the needs of the pre-adolescent
- Appropriate homework be assigned to reinforce skills
- Exploratory programs be provided that introduce students to a variety of topics, skills, and content fields
- Instruction be organized so that it recognizes the learning and developmental characteristics of pre-adolescents

- **Opportunities for cooperative and individual learning activities and tasks be provided**

- **Study skills be emphasized through continuous instruction and appropriate parent involvement in home study**

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- There will be a consistent grades 6-8 organization in all middle level schools.

- Students will receive recognization and rewards for achievement in all areas of development.

- Students' programs will be articulated consistently and equitably throughout the school system.

- Students will be able to explore their interests, aptitudes, and special talents through a wide variety of activities.

- Students will demonstrate higher levels of achievement and will pursue programs commensurate with their abilities and interests.

CONSIDERATION: SENIOR HIGH SCHOOLS

PRESENT STATUS

As of September 1986, there were 13 comprehensive senior high schools in the county with a total enrollment of 18,701. The smallest is Brooklyn Park with 603 students in grades 9-12 and the largest is Old Mill with 2,283 students. The average senior high school enrollment is approximately 1,440 students.

Of the 1,037.4 senior high school teachers, 54.3% are female, and 45.7% are male. Twelve principals are male and one is female. Minority teachers represent 11.5% of the total. There are 3 minority principals.

The staffing ratio is 22.5 to 1, however, the average class size is approximately 27 or 28. Teachers teach five out of the six periods each day. Art, music, and physical education class enrollment may vary widely due to the nature of the class. For instance, a band class might have as many as 100 students while an ensemble class could be as low as 4 or 5 students. In order for a class of under 15 to be held, a permission waiver from the Senior High School Director must be secured.

Course Offerings

Throughout the 1960s and 70s the trend in public education was to offer more elective courses that were relevant to the students. The number of course offerings in the county school system continued to increase until the late 1970s when there were 374 approved courses. This trend was noted as a concern in the 1980 Ten-Year Plan for Educational Excellence and the Ten-Year Planning Committee recommended "the establishment of minimum offerings for a comprehensive high school program." Efforts to implement this recommendation resulted in the reduction of courses in six instructional programs.

English/language arts and science courses were reduced by 20 and 17 respectively. On the other hand, the number of course offerings was increased in eight program areas. In addition, one new instructional program, computer science, was added. Presently there is a total of approximately 190 approved courses.

An additional concern noted by the Ten-Year Planning Committee was the fact that the school system had not defined precisely which courses needed to be offered within every school's curriculum before additional courses could be included in the school's offerings. As a result, certain schools failed to include courses in their program of offerings which a student should have been able to find in any comprehensive high school. Since that time the Board of Education has recognized the importance of offering certain basic courses in each secondary school and has established a policy whereby a basic core of courses must be available in all high schools. In most instances the courses are available on an annual basis, however, some courses are scheduled in cycles assuring that all students have reasonable access to enrollment during the four year attendance period in grades 9-12. Once schools have made provisions for the core courses, they are free to offer courses identified as electives. The availability of elective courses varies from school to school due to the fact that these courses are dependent upon student demand, teacher expertise, and teaching resources.

A breakdown of the number of courses available, as well as the number of core courses, under each major program heading follows:

Instructional Program	No. of Separate Courses Offered	No. of Core Courses
Art	22	6
Business Education	23	18
Computer Science	4	1
Driver Education	1	1
English/Language Arts	35	22
Foreign Language/ESOL	30	10
Home Economics	13	5
Industrial Arts	17	5
Mathematics	21	11
Music	41	6
Health and Physical Education	29	1
Science	20	4
Social Studies	26	11
Trades and Industry	30	--
Cooperative Work Experience	10	3
Special Education	21	12
Alternative Credit	1	--
TOTAL	344	116

Graduation Requirements

The high school diploma signifies successful completion of a given set of requirements which form the minimum criteria for graduation. In the State of Maryland, students must satisfy criteria in three areas: an enrollment requirement, a credit requirement, and a proficiency requirement.

To meet the enrollment requirement, students must satisfactorily complete four years of study beyond the 8th grade. There are exceptions to this requirement, however. A student may graduate in less than four years by means of one of the following options:

- an accelerated 22-credit program in which students may obtain the minimum credits needed for graduation in a shorter time span, by request in writing from the student and his parent and with the approval of the superintendent of schools
- an early college admission program in which the high school diploma is awarded upon successful completion of a year of college work
- early admission to approved vocational, technical, or other post-secondary school for which the student may receive a high school diploma after successfully completing a year of post-secondary work
- a job-entry training program in which the student earns the eight elective credits for satisfactory work "on the job" under the supervision of a school teacher-coordinator (The 15 minimum required credits in designated subject areas must be taken in the regular school program.)

Of these four alternatives to the four year enrollment requirement, the first is the most commonly used in Anne Arundel County, with approximately 237 students doing so in the 1985-86 school year. Limited use is made of the other three alternatives, as exceptions to the four year enrollment requirement.

The credit requirement mandates a minimum of 22 credits beyond the 8th grade. A unit of credit is based upon satisfactory completion of a specified number of clock hours. Satisfactory completion of 132 clock hours earns one credit; 66 clock hours is required for a half-credit, and so on. In order to have enough time to earn one credit within a 180 day school year, the minimum daily time allotment must average 44 minutes. The following table shows the number of clock hours required by the Maryland State Department of Education for the various credit units.

Credit Clock Hours and Minimum Daily Instructional Periods

Credit	Clock Hours	Daily Period in Minutes	No. Days Needed to Meet Clock Hrs. Reqs.
1	132	44	180
1/2	66	44	90
1/3	44	30	90
1/4	33	44	45

The school system does not offer any courses at the present time awarding 1/3 or 1/4 credits. Instructional periods in the county high schools range from 50 to 55 minutes over the 180-day school year - more than sufficient to meet the minimum clock-hour requirements for both the 1-credit and the 1/2 credit courses.

In addition to specifying the number of years a student must be enrolled beyond the 8th grade, and the number of credits which a student must earn, Maryland requires that at least 15 of the credits must be earned in the following areas: 4 in English Language Arts; 3 in social studies; 3 in mathematics; 2 in science; 1 in physical education; 1 in fine arts; and 1 in practical arts.

Individual school systems in Maryland are required to adhere to this prerequisite for graduation. However, local education agencies may require that two additional credits be earned in specific subject areas. Anne Arundel County has exercised this option by requiring that students earn 22 credits to graduate and that one of the electives must be in an academic area. Academic areas are defined as English, social studies, mathematics, science, foreign language, computer science and any advanced placement course. This structure of required courses is shown on the following page. More specific details may be found in the 1987 Course Descriptions booklet.

Students may earn credits in summer school, evening school, and correspondence courses whose programs and examinations have been approved by the Maryland State Department of Education. Credit may also be earned through work/study programs and experience outside the school when identified as an integrated part of a planned educational program (no more than 8 credits may be earned in this way). Though the option is being phased out, students may currently earn a maximum of 6 credits toward graduation through examinations.

A minimum competency requirement mandates that a student must demonstrate competency with an identified set of basic educational objectives in order to receive a diploma. Usually students must achieve a given score on a standardized examination written specifically to evaluate attainment of the competency objectives. Project Basic, which marked the beginning of minimum competency requirements in Maryland, was developed by the Maryland State Department of Education in response to the public concern for some mechanism to ensure that graduates have attained at least some identified level of competency in the area of basic skills, the world of work, the arts/physical education, citizenship, and survival skills.

Under Project Basic, competency tests have been developed in reading, mathematics, writing, and citizenship. The competency test requirements are being phased in over a period of years. The phase-in schedule began in 1982 when all students graduating from Maryland public schools were required to take and pass the Maryland Functional Reading Test. The Functional Math Test must be passed by 1987 graduates, the Citizenship Test by 1988 graduates, and the Writing Test by 1989 graduates. A passing score is established by MSDE for each test each year. The tests are first administered in the ninth grade. Students failing to pass are given opportunities to retake the tests at least once each school year. The school system is obligated to provide assistance to all students under the age of 21 who have not passed the tests.

In order to demonstrate competencies in the arts, physical education, the world of work, and survival skills, students must participate in an approved program in each of the three areas. There is no state test requirement for these areas.

Anne Arundel County Certificates of Program Achievement

In addition to the high school diploma, it is possible for a student in Anne Arundel County to earn a certificate of achievement in one of the following four county sponsored program areas:

- Advanced Academic
- Academic
- Vocational-Technical

Course Requirements for Graduation

	State Required		A.A. Co. Required	
English Language Arts	4 credits	local option as to how applied	4 credits	1 credit in English 9; 1 1/2 credits in oral and written composition (1/2 credit of which must be speech); 1 1/2 credits in reading and literature
Social Studies	3 credits	1 in U.S. History, 1 dealing with contemporary issues, including local, state, and national government	3 credits	All students must earn 1 credit in United States History and 1/2 credit in American Government which is recommended to be taken in grade 9. The classes of 1987 and 88 must also earn 1/2 credit in contemporary issues and 1 credit in social studies electives. The classes of 1989 and thereafter must earn 1 1/2 credits in social studies electives.
Mathematics	3 credits	local option	3 credits any math courses	1 credit may be earned in business mathematics; 1 credit may be earned in certain designated trades and industry programs.
Science	2 credits	local option	2 credits any science courses	1 credit may be earned in certain designated trades and industry programs.
Physical Education	1 credit		1 credit	1/2 credit in grade 9 and 1/2 credit sometime in grades 10-12
Fine Arts	1 credit	local option	1 credit	Music, art, dance, and acting arts courses meet this requirement.
Practical Arts	1 credit	local option	1 credit	All home economics and industrial arts courses meet this requirement. Most vocational education (trades and industry and health occupations), most business, and most computer science courses meet this requirement.

- Specialized

Student involvement in the certificate program is voluntary. Although no specific grade point average is required for awarding a certificate, each certificate requires completion of 24 specified credits

The Advanced Academic Certificate program is designed for the highly capable and motivated student interested in pursuing a rigorous program of academic study. While completing all other state and local graduation requirements, the student must earn an additional credit in science, three foreign language credits in the same language, and at least two credits in advanced placement courses. The advanced placement program is offered in cooperation with the College Board. These demanding and challenging courses are designed for academically outstanding students. Beginning with the class of 1989, students must also earn 1 credit in fine arts, 1 in practical arts and 2 in other electives.

The Academic Certificate program is designed for the student interested in pursuing a well-balanced program of academic study. Two foreign language credits earned in the same language and three academic elective credits are required. Although advanced placement courses are not required, it is recommended that they be included in a student's program.

The Vocational-Technical Certificate Program is designed for the student interested in preparing for a specific career or vocational-technical education beyond high school. In order to earn this certificate, the student must complete the vocational technical program requirements and must meet licensing requirements for a given program where they exist.

The Specialized Certificate Program is designed to offer maximum program flexibility for students with unique post-secondary school goals and/or specialized interests in the areas of art, music, or physical education and health. In order to qualify for this certificate the student must complete a planned program with a minimum of five credits in either art, music, or physical education and health.

Maryland High School Certificate of Merit

More than 80 of the 344 course offerings have been identified as advanced level courses. Students earning at least 12 of their required credits in advanced level courses and who obtain at least a 2.6 cumulative grade point average are also eligible for a Maryland High School Certificate of Merit.

RESEARCH

A review of the literature produced the following findings:

- Enrollment in grades 9-12 is expected to decline in Anne Arundel County until approximately 1991 when it will begin a gradual increase.

- There is no optimum class size which applies to all types of students, all subject areas, or all grade levels.

- Nationally, the trend is toward smaller schools with more positive learning climates. Many sources suggest that 1500 to 1800 students should be the maximum size for a high school.

- School systems nationwide are reducing the number of course offerings and being more prescriptive in program offerings.

- School systems nationwide are increasing the overall requirements for graduation and are increasing the number of credits in specific program areas.

- Boards of education are requiring students to demonstrate competencies as a requirement for promotion.

- Many school systems are again implementing differentiated diplomas and/or certificates of merit.

- Colleges and universities are becoming more prescriptive in their course entrance requirements.

- There is a national trend toward decentralization giving greater autonomy to principals for making decisions about individual schools.

- Strong principals and good teachers are the major factor in a school's success.

- Effective high schools are characterized by clear goals and high expectations.

- The world of today and that of tomorrow place greater emphasis on thinking skills and on creativity.

- Today's students, tomorrow's adults, must be prepared to live and think with a global perspective.

- There is an increasing demand for technical knowledge as the use of computers in business and daily living increases.

- Business leaders report that the primary key to success is solid basic skills and positive work attitudes.

- Jobs in the future will be substantially restructured every five to seven years. Today's graduates must expect to adjust and to retrain.

- Schools today compete with a wide variety of multi-media sources of information and role models.

- Parental and community involvement improves school effectiveness.

- Participation in extra-curricular activities has a positive effect on academic achievement.

- Minority students and males are at the greatest risk of poor academic achievement and of leaving school before graduation.

- More than 83% of Anne Arundel County's senior high students complete the 9-12 program. This is 5% higher than the state and 10% higher than the nation.

- Many high schools across the country are actively involved in strategic planning.

RECOMMENDATION

Today's high schools face tremendous challenges. One of the most commonly cited features of life today is the rapid rate of change. The inability to accurately predict the direction or extent of these changes and the impossibility of teaching all the knowledge or skills needed places a particular burden on the high school which for many students is the last phase of formal education. It is the task of the high school to prepare students with vastly different needs and vastly different levels of ability to function adequately as adults and as productive citizens. High schools must have a comprehensive program which will give each student an opportunity to develop the basic skills, the thinking skills, the adaptability, and the attitudes necessary for lifelong learning.

It is recommended that:

> **AN ORGANIZATIONAL STRUCTURE AND DELIVERY SYSTEM BE DEVELOPED AND IMPLEMENTED WHICH WILL PREPARE STUDENTS TO ACHIEVE SUCCESS IN POST-SECONDARY EDUCATION AND/OR THE WORLD OF WORK**

In order to implement the above recommendation, it is proposed that:

- Grades 9-12 be housed in the senior high school
- A more flexible approach to staff allotment be adopted to replace the fixed teacher-pupil ratio
- More flexible scheduling be adopted
- In light of increases in graduation requirements, the practicality of the seven period day be re-examined
- Further refinement of course offerings be made to ensure equitable programs for all students
- Greater autonomy be given to principals to meet the needs of individual schools within the framework of county goals and policies
- Greater emphasis be placed on improving instruction
- The role of the department chairperson as an instructional leader be expanded
- Teachers be given a larger role in decision-making not only in instruction, but also in the determination of goals, policies, and inservice programs
- The use of computers and related technology in instruction and in administration be increased
- The latest research findings be used to improve instruction
- Opportunities for learning experiences in settings other than the traditional classroom be increased
- Greater emphasis be placed on inter-disciplinary and multi-cultural learning experiences

- Learning experiences be developed which help students analyze, interpret, and evaluate information received from multi-media sources
- The individual differences in the needs and learning styles of all students be recognized
- Greater attention be given to the needs of students who are not in advanced programs, remedial programs, or other special programs
- A climate be developed in which all students and staff are encouraged to do their best
- Students and teachers be recognized and awarded for achievement
- Certificates that reflect the specific programs and accomplishments of graduates continue to be awarded
- A strong extra-curricular program be maintained
- Greater involvement of parents and of the community be encouraged
- Articulation with elementary and middle level schools be increased
- Proactive planning be encouraged

OUTCOMES

With the adoption of the above recommendation, the following outcomes are projected:

- There will be a consistent senior high school grade organization.
- Each school will have a comprehensive program appropriate to the unique characteristics of the school facility, the students, the staff, and the community.
- Individual student interests, aptitudes, and talents will be developed.
- Completion of graduation requirements by all students will be facilitated.
- The specific needs of at-risk students will be met more adequately resulting in an increase in daily attendance and a decrease in the number of dropouts.
- Students will attain higher levels of achievement.
- Students and staff will use computers more effectively.
- There will be less time spent on record keeping and paper work tasks, more time spent on instruction and on instructional supervision.
- Multi-cultural understandings will be improved.
- There will be greater communication with and involvement of parents and other members of the community.

- Students will receive a high quality education that will prepare them to accept the responsibilities of adulthood.

CONSIDERATION: GRADE ORGANIZATION

PRESENT STATUS

The implementation of a consistent grade organization was recommended in the Ten-Year Plan in 1980. However, the following table reveals that there is still a wide variety of grade configurations within the school system.

Grade Organization
1986-1987

Elementary

Grade Configuration	K-6	K-5	Pre K-6	1-6		Total
Number of Schools	43	26	4	1		74

Middle/Junior

Grade Configuration	7-9	6-8	7-8	6-7	8-9	Total
Number of Schools	7	6	2	1	1	17

Senior

Grade Configuration		9-12	10-12	7-12		Total
Number of Schools		7	5	1		13

RESEARCH

A review of the literature produced the following findings:

- There is a nationwide trend toward the establishment of middle schools with grades 6 through 8.
- The state of Maryland has 102 grades 6 through 8 middle schools.
- Twenty-eight percent of Maryland's elementary schools have a K-5 organization, while 30% have a K-6 organization. The remaining 41% have a variety of other grade configurations.
- Thirty-eight percent of Maryland's middle/junior high schools are 6-8 middle schools. The remaining 62% are 5-8, 6-7, 7-8, or 7-9 middle or junior high schools.

- Sixty-six percent of Maryland's high schools have a 9-12 grade organization while only seven percent have a 10-12 grade organization. The remaining 26% have a variety of other grade configurations.
- Grade configurations within the county have gone through various transitions during the past 50 years. Marley Junior High, the first county junior high school, opened as a 7-9 school in 1958. Prior to this there were only two school levels, elementary and secondary. Since 1958 many grade organization patterns have emerged, especially during the rapid population growth of the county during the 1960s and 1970s.
- In 1972 a design model for curriculum development of grades K-2, 3-5, 6-8, and 9-12 was adopted.
- During the 1970s and early 1980s there were many renovations and new buildings constructed to accommodate the student population. Attendance boundaries were drawn on an ad hoc basis. This practice resulted in the inconsistent grade organization in existence today.
- The sixth grade student is best served in a middle school (6-8) configuration.
- The majority of sixth grade students are physically, emotionally, and academically capable of functioning in a 6-8 middle school setting.
- A grades 6-8 middle school facilitates the transition between elementary school and senior high school better than a grades 7-9 junior high school.
- Because the program is more flexible, has more latitude in scheduling, and is more comprehensive, the four year high school program ensures greater educational opportunities for students and thus best serves the ninth grade student.
- Middle schools provide an intramural program for students which is consistent with the growth and development of the middle school age student.
- Consistent grade organizations facilitate equal educational opportunities for all students within a school system.

RECOMMENDATION

The inconsistent grade organization has an adverse impact on curriculum design and implementation. Sixth graders in elementary schools do not get the same type of educational program offered to sixth graders in middle schools in terms of course availabilities and delivery systems. Sixth grade students in middle schools have the opportunity to take a foreign language course, for example, while sixth graders in elementary schools do not. Sixth grade students in the middle schools work in equipped science laboratories. There are no such laboratories for elementary school science students.

Inequity of opportunities exist between the junior and senior high school as well. For example, there is more flexibility and latitude in scheduling for ninth graders in senior high schools than in junior high schools. Some core courses appropriate for ninth graders that are required to be offered in all senior high schools may or may not be offered in all junior high schools. In addition, many elective courses open to ninth graders in senior high schools are not available in junior high schools. Also, junior high ninth graders are excluded by Maryland State regulations from senior high athletic activities while high school ninth graders are not.

It is recommended that:

A CONSISTENT GRADE ORGANIZATION BE IMPLEMENTED

In order to implement the above recommendation, it is proposed that:

- A phase-in plan be developed to make:
    - all elementary schools grades K-5
    - all middle schools grades 6-8
    - all senior high schools grades 9-12
- Existing physical plants be altered where necessary in order to accommodate the shifts in enrollment created by the consistent grade organization
- The construction of new facilities be consistent with the grade organization pattern
- Parents, students, staff, and the community-at-large be educated on the benefits of consistent grade organization
- Staff development be provided for all personnel affected by the transition

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- There will be a consistent K-5, 6-8, 9-12 grade organization pattern.
- Sixth graders will have more opportunities for exploratory studies.
- The transition between school levels will be enhanced.
- All sixth graders will have equal educational opportunities.
- Middle school students will be in a social, emotional, and learning environment which is best suited to their developmental level.
- Ninth graders will have equal educational opportunities.
- Well trained staff, appropriately assigned, will enhance the respective philosophies of the elementary, the middle, and the senior high schools.

CONSIDERATION: EFFECTIVE SCHOOLS

PRESENT STATUS

An Effective Schools Program (ESP) was begun in one elementary area in the fall of 1981. The program is built on the principles of the latest research on effective teaching and effective schools. In the other elementary areas of the county a more eclectic approach to the effective teaching/effective schools research has been implemented. Although the staff has received effectiveness training from a variety of sources, the most prevalent source has been the Model for Increasing Teaching Effectiveness (MITE) program which is offered through the Staff Development Office. This program draws heavily on the theories of Madeline Hunter.

The Instructional Leadership Project (ILP) started during the 1980-81 school year was established for the purpose of improving instruction in the secondary schools, thereby reducing the incidents of student disruption. ILP is a three-year program designed to develop the potential of department chairpersons to assist teachers with the overall improvement of the instructional program. A school team of department chairpersons and administrators meets regularly with an ILP staff person to establish and implement goals and objectives based on the school's concerns for improving instruction. All secondary schools have now participated in the program with the last three beginning the three-year program in the fall of 1986. The program was also begun as a pilot program in one elementary school during 1986-87.

Workshops and inservices at all levels have been held on effectiveness topics such as school climate, effective teaching strategies, active teaching/active learning techniques, and peer coaching.

In addition to workshops and inservices, elementary area and secondary directors have distributed a great deal of literature concerning the characteristics of effective teachers, effective administrators, and effective schools.

RESEARCH

A review of the literature produced the following findings:

- Effective schools have effective leaders.
- Effective schools are usually characterized by:
    - strong leadership from a principal or a group of teachers who have the authority to initiate and maintain school improvement
    - staff development opportunities that link concerns of the staff to the school's specific instructional and organizational needs
    - supervision and evaluation of instruction, usually by the principal
    - schoolwide recognition of the importance of academic achievement
    - maximized learning time free from disruptions
    - involvement and support of parents, especially in the areas of homework, discipline, and high expectations

- Effective schools place priority on the acquisition of basic academic skills.
- Effective schools give attention to systematic, sequential instruction.
- The climate of effective schools is characterized by high expectations for all students, orderly and controlled behavior, and singleness of purpose among students, teachers, and administrators.
- In effective schools students achieve equally well regardless of race, sex, or socio-economic background.

RECOMMENDATION

The school system must provide its students with effective schools so that learning can be maximized and all students can reach their potential.

It is recommended that:

> **THE FINDINGS FROM STUDIES OF EFFECTIVE SCHOOLS BE USED TO PROMOTE EDUCATIONAL EXCELLENCE FOR ALL STUDENTS**

In order to implement the above recommendation, it is proposed that:

- All school system leaders be knowledgeable about effective schools research
- Candidates promoted to leadership positions possess strong demonstrated educational leadership capabilities
- Staff development opportunities be school specific and link staff concerns to the school's specific instructional and organizational needs
- Instruction be supervised and evaluated by the principal
- Student academic achievement be closely monitored by principals
- The importance of academic achievement be recognized schoolwide
- Learning time be free of disruptions
- Steps be taken to encourage parental involvement and support in the areas of homework, discipline, and high expectations
- School climates be established which support progress toward the goals and expectations

OUTCOMES

With the adoption of this recommendation, the following outcome is projected:

- Students will reach their maximum potential.

CONSIDERATION: TEACHER LEADERSHIP

PRESENT STATUS

The instructional organization of the school system designates the principal as the instructional leader of the school. To aid in this effort the position of department chairperson was formally established in 1974 at the secondary level. Principals may appoint a chairperson for any department with at least three full time teachers. Department chairpersons serve in all secondary schools but not necessarily in every curriculum area. Small departments may be combined with other small departments with one department chairperson representing the combined areas. Physical education, art, music, home economics, and foreign languages are the departments most likely to have fewer than three teachers and, therefore, to be combined under one department chairperson. Principals rate the teachers, but they are increasingly relying on critical input from the department chairpersons in order to complete the evaluation process.

Teachers applying for department chairpersons' positions may be assigned wherever needed within the school system.

Primary duties of department chairpersons are to assist teachers and other personnel in the department and/or school with implementation of the program, to improve teaching techniques, to promote inservice growth, and to coordinate overall instructional activities.

Responsibilities, which were revised in 1982 include:

- school/department needs assessment and goal setting
- department climate building and communication
- department organization and management
- curriculum development and implementation
- program evaluation
- department inservice
- instructional strategies
- teacher orientation
- scheduling/course selection
- articulation

Qualifications for teachers seeking a department chairperson position were established in 1974 and remain in effect today. The qualifications include:

- at least three years of successful teaching experience with as varied assignments as possible
- an Advanced Professional Certificate

- a planned program of graduate work with at least one course in each of the following: curriculum, supervision, content in the field
- completion of the promotion exam
- a demonstrated ability to work well with people
- a broad knowledge of curriculum, teaching techniques, and content
- an understanding of and interest in children in the total school program
- a potential for leadership and professional growth

Department chairpersons work five days beyond the regular school year with the approval of the principal and are paid on a per diem basis for the extra days. Guidelines for use of time by department chairpersons are as follows:

No. Department Members (Including Chairperson)	No. Teaching Periods	No. Periods for Dept. Duties	No. Planning Periods
7 or more	3	2	1
3-6	4	1	1
1-2	5	0	1

In addition to being evaluated as classroom teachers, department chairpersons are evaluated as chairpersons by their principals. The Department Chairpersons Evaluation Instrument form is used for this purpose. The evaluation procedure is comprised of the following activities:

- The department chairperson lists a series of his/her specific objectives for the school year.
- The department chairperson meets with the principal or designated administrator to establish these objectives by September 30 of each school year.
- Periodic meetings are held by the department chairperson and the administrator to review and to assess progress toward these objectives. A mid-year meeting is required.
- The department chairperson and administrator meet near the end of the school year to evaluate the achievement of the objectives. The evaluation will be a source of planning for the next school year. Comments and/or recommendations can be made by both the principal and the department chairperson.

The Office of Staff Development conducts a three-credit workshop to train persons for department chairperson positions and sponsors other leadership workshops. Also, there have been ongoing inservice programs to promote the efficiency of department chairpersons by the program coordinators and through the Instructional Leadership Project.

Many of the same duties performed by the department chairpersons in the secondary schools are likewise performed by teachers in the elementary schools. Although there are no formal provisions made for the appointment of elementary chairpersons, some elementary principals have at their discretion designated one teacher per grade level to act as the team leader or grade level coordinator. In some of the elementary areas, certain teachers who have been through teacher effectiveness training are designated as team leaders. These team leaders assist the principals in the implementation of teacher effectiveness training. The team leaders also give presentations at principals' and directors' meetings. Although elementary teacher leaders do not have released time, substitute days are sometimes provided for these tasks.

RESEARCH

A review of the literature produced the following findings:

- High school principals perceive their role as mostly administrative and managerial in nature.
- High school principals are increasingly depending on department chairpersons for instructional leadership.
- Differentiated teaching positions with varying degrees of responsibility and accountability could help to improve teachers' attitudes toward teaching careers.
- Differentiated teaching positions are increasingly being implemented in school systems across the nation.
- Administrators need to be prepared to work efficiently and effectively with teacher leaders.
- Compared to their colleagues, teacher leaders are more likely to have the following characteristics: the capacity to bring about moderate change in the school, exceptional knowledge of curriculum and instructional skills, and a more positive relationship with students and adults involved with the school. Also, compared to their colleagues, they are older, have reached a higher level of formal education, and have more teaching experience.
- A teacher leader's effectiveness is often measured by the teacher's influence in bringing about change in a school.
- Principals see an increase in the department chairperson's role of providing critical input into the teacher evaluation process.
- While some view the involvement of department chairpersons in the evaluation process as negative because it puts the chairperson in a semi-supervisory role, teachers react more positively to supervision and ratings they receive when these originate with persons closely involved with the program in question, rather than persons further removed from the implementation process.

RECOMMENDATION

The many administrative and managerial responsibilities of the principalship frequently take priority over the instructional leadership responsibilities. Therefore, principals must depend on teacher leaders to assist them in this effort. The department chairpersons at the secondary level provide principals with this needed assistance. However, for small departments (less than three teachers) and in elementary schools, comparable assistance is needed.

It is recommended that:

> **TEACHER LEADERSHIP POSITIONS BE RECOGNIZED FOR EACH PROGRAM AREA AT THE SECONDARY LEVEL AND COMPARABLE POSITIONS BE RECOGNIZED AT THE ELEMENTARY SCHOOL LEVEL**

In order to implement the above recommendation, it is proposed that:

- A career step on the teachers' formal salary scale be established for department chairpersons
- An organizational structure be developed and implemented to provide teacher leadership positions at the elementary school level
- An organizational model be developed and implemented that would allow department chairpersons to assume duties in more than one secondary school
- Inservice be conducted which will prepare administrators to work efficiently and effectively with teacher leaders
- A master list of all teachers who are interested and who are qualified to become department chairpersons/teacher leaders be made available to all principals

OUTCOMES

With the implementation of the above recommendation, the following outcomes are projected:

- Principals will have effective instructional leadership assistance in all disciplines and specialty areas.
- Teacher attitudes towards teaching as a career will improve.
- Teacher observation and evaluation will be enhanced.
- Administrators will work effectively with teacher leaders.

PROGRAM AREA: LIBRARY MEDIA

PRESENT STATUS

With the exception of students at the Learning Center and Phoenix Annapolis, all students have access to a school library media center. However, there is great variation in size and quality of the physical facility from school to school across the county.

The school library media collection consists of such items as books, periodicals, filmstrips, video cassettes, sound/slide presentations, and microcomputer software. These collections are reviewed and updated on a continuing basis to support instructional programs. As of September 1985, average collections consisted of twenty-five items per pupil at the elementary level, nineteen items per pupil at the middle/junior high level, and thirteen items per pupil at the high school level. However, a disparity of quality and quantity of both book and nonbook materials exists between schools, ranging from six items per pupil in one school to eighty-two items per pupil in another school. The disparity is particularly pronounced at the secondary level.

School library media centers are staffed according to school population. However, within this context many inequities exist. Four different classifications of personnel are used in the media centers: media specialist, media aide, library clerk, and media production specialist. These positions exist singly or in any combination, in a full or part time capacity. Thirty-nine elementary schools are assigned a professional media specialist only part time, sharing coverage with an aide. Of the total, only three schools lack full time coverage when the professional or the aide is not there. Senior high schools may elect to fill a second professional position with 2.5 aides or obtain additional support for the media center through adjustment to other staff resources at the discretion of the principal.

The central office staff consists of seven professional staff members, including the director, eight professional support staff, twenty-four classified personnel, and one work-study student. These employees are assigned to the eight major offices within Library Media Services which include the following: Professional Library, Review and Evaluation Center, Media Production Center, Cataloging, Processing Center, Library Book Review and Evaluation Center, Film Library, and Audiovisual Equipment Repair Services. Thirty-four of these staff members are housed at the Green Street office of Library Media Services, while the other five are located at the Riva Road office.

The Scope and Sequence of Library Media Skills K-12 consists of four sections: goals and objectives for media skills instruction; suggested activities for implementing the Scope and Sequence; a media skills bibliography; and selected curriculum matches, the development of which is ongoing.

Library media specialists are responsible for instruction in orientation to library media procedures, location and selection of resources, utilization and comprehension of resources, knowledge of and appreciation for literature and reading, and production of materials. This skills instruction is most effective when integrated with other curricular areas through consultation and planning with school staff.

Library media specialists offer inservice opportunities for school staffs, such as instruction in the use of audiovisual equipment, techniques for research in the media center, and awareness of materials available in the center to support instruction.

At the school level, media specialists are responsible for providing professional resource services which include:

- selecting and evaluating materials
- managing and implementing procedures for acquisition, organization, and circulation of materials and equipment
- providing reference and information assistance to students for classroom assignments
- assisting teachers in professional research
- identifying and obtaining resources

- consulting and planning with building and system level staff, as well as with other individuals and organizations

- participating in curriculum development, implementation, and evaluation

The central office library media staff has the dual responsibility for providing support at both the system level and in the individual schools. This support includes the following services:

- evaluating, selecting, acquiring, and maintaining data bases of library media materials

- reviewing and evaluating materials of instruction

- developing school library media programs and providing resource support for personnel

- cataloging and processing library media materials that are not available shelf ready

- providing professional library services to all staff members in the school system, as well as to interested citizens of the community

- evaluating, acquiring, and distributing films; planning and implementing video/cable/interactive television programs; and evaluating audiovisual equipment

- coordinating and implementing two-way cable services to ten high schools

- producing media materials which are commercially unavailable for instructional programs in all schools, as well as producing materials for administrative staff and central office personnel

- evaluating, maintaining, and repairing audiovisual equipment and microcomputer hardware

RESEARCH

A review of the literature produced the following findings:

- Carefully selected and/or produced - taking into account both media attributes and student characteristics - and systematically integrated into the instructional program, educational media have a major impact on student achievement and self image.

- When teachers have received specific training in the utilization of media, these media are more effectively and efficiently used, and therefore have a greater impact on students.

- When staffed by full time specifically trained media specialists, media centers have a greater impact on studends and on the use of media in instruction and on students.

- Media centers have a greater impact when collections and services are based on and integrated into the curriculum and instructional program.

- If library media skills are taught in isolation and not integrated with classroom instructional activities, little if any skills learning takes place.

- The roles of the library media program and personnel as significant contributing factors to the solution of information problems in an increasingly complex society must be clearly communicated to students, teachers, and administrators.

- Considerable confusion exists regarding the roles that the library media specialist performs. This is largely due to inaccurate perceptions by other school personnel or a lack of acceptance of these roles.

- Free intellectual and physical access to a broad range of quality materials and services, instruction in the use of these materials and services, and the frequent opportunity to practice and apply learned skills in an information rich laboratory is necessary in order for students to achieve success.

- Reductions in funding for facilities, staff, and materials threaten the current need for growth and expansion at the very time that society is becoming increasingly information dependent.

- Continuing emphasis needs to be placed on integrating the instruction and application of information seeking and utilization skills into the various instructional areas.

- A key role for the library media specialist is the ability and opportunity to provide consultation and assistance to teachers and administrators regarding the use of the library media center and its services.

- Library media specialists have the responsibility for providing students with the skills that will enable them to encode and decode visual and aural language, the dominant sources of information in today's society.

- In addition to skills in reading, writing, and mathematics, students must acquire visual and aural literacy in order to be able to assess and evaluate media that are used to disseminate information.

- Media specialists must change both their role and students', teachers', and administrators' perceptions of that role.

- The back to basics movement fails to acknowledge that society has changed and that what was formerly considered basic and sufficient is no longer adequate for economic or personal survival.

- Technology can be used in the administration of school library media programs in an efficient and cost effective manner in the areas of technical services, scheduling, circulation, security systems, information retrieval, information transmission, and budgeting.

- The use of technology in the administration of school library media programs can produce documented savings, relieving library media specialists of clerical duties, and allowing more time for involvement in curriculum development and for working with students and teachers.

- Many of the technological applications used in the administration of school library media programs can also be applied, either directly or indirectly, to direct instruction.

- The computer can be used in school library media centers for automation purposes in the areas of record keeping (i.e., circulation, budget, and acquisitions); computer assisted instruction (CAI); and networking which includes services such as interlibrary loan, reference/referral, and access to information via telecommunications link.

- Networking could allow a school to increase its potential resources by a factor of at least 700%.

- Home computers, video disks, and cable television are three developing technologies that are likely to have a profound effect on education and especially on the school library media center with each of these technologies being intertwined as means of storing, receiving, transmitting, and processing vast amounts of information at very cost effective levels.

- Monies for materials in library media centers present a more unique problem than funding for textbooks in the face of declining enrollments. Reduced textbook purchases can reflect decreases in enrollments, but this decline is not paralleled by a decrease in the need for information and services obtained in the media center.

- It will be necessary for school library media centers to consider the acquisition of materials in new formats as the costs of conventional materials increase while the costs of developing technologies rapidly decrease.

- The cost of transmitting millions of instructions per second (MIPS) via telecommunications links, which was $15,000 per MIPS in 1980, should drop to $10 per MIPS by 1990.

- The cost of a conventionally printed book at $10 can be reduced to a cost of 0.1 cent per book or $10 per 10,000 books when stored on a video disk.

- Conventionally printed words will no longer be the ultimate form of education as technologies will transform them, but not replace them.

- Library media specialists will become surveyors of information, instructing students in accessing and searching computer databases, online catalogs, and library networks.

- Media personnel should become full members of the teaching faculties in schools, while simultaneously developing procedures and policies for storage, transmission and retrieval of vast quantities of information.

- In the next two decades library media personnel will become known as information specialists as current information forms are reshaped by technology.

- The trend of educational media in the future will be characterized by change, and school libraries will have to take a dynamic and proactive approach to information service in order to remain viable.

RECOMMENDATION

The library media program must anticipate the needs of students, teachers, and administrators in the age of information and rapid technological development. State-of-the-art technologies must be used to manage systems capable of storing, retrieving, and transmitting information in forms that are specifically adapted to users' needs. The library media program and specialist must be responsive and adaptive to the forces of change within society. This will require continuous reassessment, changes in current role definitions, and an active promotion of newly developed roles.

It is recommended that:

> **TECHNOLOGIES BE USED TO PROVIDE STUDENTS AND STAFF WITH RAPID ACCESS TO MULTIPLE SOURCES OF CURRENT INFORMATION IN ORDER TO SUPPORT STUDENT INSTRUCTIONAL PROGRAMS AND STAFF INFORMATION NEEDS**

In order to implement the above recommendation, it is proposed that:

- The role of the media specialist be modified to emphasize the teaching, management, and information specialist functions
- Inservice be provided for library media specialists and for library media users (e.g., central office personnel, principals, and teachers) concerning the role of the library media specialist and state-of-the-art information technologies
- Library media specialists serve on curriculum writing revision committees and materials of instruction review committees
- A countywide approach to the production of instructional materials not commercially available be adopted
- As media presently in use (e.g., multiple hard copies, 16mm films, filmstrips) are phased out and the same information is available through new modes of information such as cable, microwave, on-line networking, and CD ROM, the school system staff and facilities be realigned to reflect the changing needs for personnel and space
- A management and security system be developed for a technology driven information retrieval system
- Students be taught information discrimination and evaluation skills
- On-line access be provided to media center holdings through remote terminals
- Physical access be provided to library media centers before and after school and during lunch periods
- Video production capabilities be expanded in order to use cable television more effectively by providing specific video materials for instruction and inservice in schools and by supplying information to the public to increase awareness

- Use of allocated cable television lines be expanded to provide local broadcasting from the central office of prerecorded and live programming, as well as network control for the transmission of instructional computer software

- A centralized data base be networked with all schools within the system, the central office, universities, public libraries, government agencies, research agencies, and research clearinghouses

- Inservice activities be conducted that identify students' learning styles and improve methods and strategies of teaching students the skills of selection, evaluation, and utilization of information and materials obtained in the library media center

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The library media specialist and program will be better equipped to manage an increasing diversity of information in a manner that is more convenient and effective for students, teachers, and administrators.

- Greater economy of time and monies will be realized in the transmitting, storing, and retrieving of information through the use of information technology.

- Library media specialists will be able to select the most efficient means of disseminating information.

- Teachers will be better equipped to teach because of increased use of and access to the resources and services of the library media center.

- Students will become self-directed problem solvers.

- Students will become information literate.

- Students will develop higher order intellectual skills and attitudes regarding learning.

PROGRAM AREA: MAINTENANCE

PRESENT STATUS

The Division of Maintenance is responsible for maintaining all school buildings, both interior and exterior, and all related equipment in order to provide conditions that are conducive to excellence in teaching and learning for faculty and students in the school system. This includes but is not limited to maintaining and repairing:

- grounds (ball fields, play areas, etc.)

- doors, windows, and roofs

- electrical systems

- heating and air conditioning systems
- plumbing
- painting
- walks, driveways, and parking lots
- vehicles for the maintenance and operation division

In addition to the above, maintenance prepares specifications for new types of vehicles and equipment, is responsible for preparing specifications for contract bid jobs, inspects contract work, maintains a warehouse for materials, and interviews and hires personnel.

All new personnel in each trade are trained by the Division of Maintenance. Training in maintaining equipment is provided on an ongoing basis. Personnel are also kept appraised of the latest tools and materials to aid in the repair and upkeep of the buildings.

Funding for maintenance has been well below recommended levels for a number of years. Using a formula developed by the Council of Educational Facility Planners (ft x replacement cost x 1.75%), the maintenance program should be funded at $13 million for the current fiscal year. This figure does not include costs for maintenance back logs. The maintenance budget for FY87 is $7.46 million dollars. As the physical plants continue to age, requirements mount, and problems are compounded.

The following table shows the breakdown of the maintenance staff:

Maintenance Staff

Supervisor of Maintenance	1
Assistant Supervisor of Maintenance	1
Foremen	7
Assistant Foremen	7
Maintenance Project Assistant	1
Preventive Maintenance Program Specialist	1
Office Staff	
Secretaries and clerks,	1.5
Warehousemen, Vehicle Maintenance	10

These positions are included in the totals listed for the 7 crafts below.

Maintenance Personnel

General Maintenance	49
Electricians	18
Grounds	33
Painters	21
Plumbers	11
Heating and Air Conditioning	13
Asbestos	3
TOTAL MAINTENANCE PERSONNEL	151.5

RESEARCH

A review of the literature produced the following findings:

- The use of school facilities is projected to increase resulting in an increase in the wear and tear on buildings.
- The proliferation of new rules and regulations pertaining to the health and welfare of students, faculty, other employees, and the general public will result in additional responsibilities for all personnel.
- The maintenance personnel of today and the future will require training and modern test equipment in order to maintain new and future equipment.
- Maintenance personnel are being required to keep more complete records of the disposition of work and of hazardous materials being used on the job.
- Many school systems contract maintenance services from private agencies.
- Information acquired from maintenance records regarding quality and life span of various products such as carpeting, heating and air conditioning units, and electrical systems should be used for planning and constructing school facilities.
- School systems should purchase state-of-the-art materials and products in order to ensure maximum life span and cost effectiveness.

RECOMMENDATION

It is imperative that the capital investment of the school system be maintained in an effective and efficient manner that provides an environment that enhances teaching and learning.

It is recommended that:

MAINTENANCE PROGRAMS AND SYSTEMS BE MODERNIZED AND EFFICIENT FLEX WORK SCHEDULES BE IMPLEMENTED

In order to implement the above recommendation, it is proposed that:

- A computerized history file of expenditures and repairs be developed and implemented
- Computers be networked to all school sites to manage the maintenance of the plant
- A computerized filing system be developed and implemented to keep track of records pertaining to the right to know act and to health and welfare regulations
- Plant equipment be modernized
- Flex work schedules be implemented which provide continuous coverage
- Training of personnel be ongoing
- A central countywide location for support services be established

- One central vehicle maintenance shop be established

- Major improvements be made in old buildings to comply with existing codes and regulations

- Personnel be deployed in a more effective and efficient manner

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- School facilities will be kept in an excellent state of repair.

- Teaching and learning capabilities will be enhanced.

- Taxpayers will be guaranteed optimum return on their investment.

- Resources will be managed effectively and efficiently.

PROGRAM AREA: MANAGEMENT INFORMATION SERVICES

BACKGROUND

The Division of Management Information Services was established to gather, deliver, and present data in a usable and accurate manner so that the school system could make timely and informed decisions to improve the effectiveness and efficiency of delivering its services.

The Division of Management Information Services uses nonautomated and automated systems to provide knowledge, information, and data needed to make decisions, direct people, regulate operations, evaluate programs, and assess performance. This is accomplished through utilizing systems analysis, research, testing-evaluation, and data processing techniques.

The Division of Management Information Services is headed by a director who reports to the Assistant Superintendent for Administration. The director is responsible for management of the offices of Educational Information Systems, Testing and Evaluation, Data Processing, Word Processing, and Research.

At present, in terms of office automation, the schools and school personnel must perform their "business tasks" in a fashion similar to their predecessors years ago, utilizing equipment such as typewriter, telephone, and file cabinet. Except for the office copier, only minor steps have been made in technology.

The central office has made greater strides in the use of new technology. Plans are being pursued to extend that technology to schools and link schools to the central office. The school system is at a critical juncture in taking steps to bring it into the information age.

The five offices which make up the Division of Management Information Services are handled separately in the following sections of this report.

CONSIDERATION: EDUCATIONAL INFORMATION SYSTEMS

PRESENT STATUS

Educational Information Systems (EIS) provides services to the schools in the area of administrative applications. The office staff consists of a coordinator, an assistant coordinator, two technicians, one attendance clerk, and one discipline/suspension clerk.

EIS serves the schools in the following areas:

- Attendance - provides information daily in the senior high schools and monthly in all other schools
- Discipline referrals - provides summary data on all discipline referrals and dispositions - prepares all reports related to this data for local, state, and federal users
- Suspensions - provides summary data on all suspensions - prepares all reports related to this data for local, state, and federal users
- Scheduling - provides technical assistance to all secondary schools in the computerized scheduling of students - prepares all reports related to information provided by the scheduling system
- Grade reporting - provides technical assistance to all secondary schools, the evening high schools, and the summer school centers in the automated grade reporting and interim reporting process
- Inservice education - provides technical training on software and equipment used in the various automated functions for both technical/clerical and administrative personnel
- Reports - prepares information and reports to meet special requests

RESEARCH

A review of the literature produced the following findings:

- EIS offices are moving toward more automation and less paper.
- School systems are moving toward a centrally controlled data base with remote input from schools.
- Users have more direct access to the data bases.
- Safety and security of confidential information is a concern.

RECOMMENDATION

Educational decisions increasingly are based on information derived from quantitative data. This information is presently collected from and supplied to the schools in the form of paper reports. Schools should have the ability to be on-line with a central office mainframe so they can input and access data needed to make decisions in a timely and effective manner.

It is recommended that:

AN ON-LINE DATA BASE BE PROVIDED FOR SCHOOLS ON THOSE DATA COMPONENTS WHICH ARE NEEDED BY SCHOOL-BASED AND CENTRAL OFFICE STAFF TO MAKE DECISIONS AND TO MAINTAIN RECORDS

In order to implement the above recommendation, it is proposed that:

- On-line capabilities be provided for all schools and central offices
- The manual systems be automated
- Query systems be developed for users
- Support services be provided for the users

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Data input will be more efficient.
- Access to data will be immediate.
- Decisions will be facilitated.
- Record keeping will be facilitated.
- Personnel time will be used more efficiently and effectively.

CONSIDERATION: TESTING AND EVALUATION

PRESENT STATUS

The program of testing and evaluation was established to provide meaningful information about student achievement and program effectiveness to the instructional staff, administration, students, parents, and the general public. The program operates under the philosophy that the assessment of student performance is a major component of quality instructional program. Assessment which reflects instructional goals, objectives, and activities will produce information useful for evaluating student performance and for monitoring instructional program effectiveness.

All countywide programs of testing and evaluation are coordinated by the Office of Testing and Evaluation. The coordinator supervises the administration of over 75,000 tests annually, ensuring that test materials are delivered to and held secure in each school, that teachers are instructed and trained in correct test administration procedures, that tests are administered and scored properly, and that results are reported and interpreted correctly. Brief details of the tests are described in the Summary Table of Tests Administered Countywide on the next page.

This office is staffed by a coordinator and is aided by the Technical Assistant to Research, Testing and Evaluation. Additionally, part time clerical assistance is used to process the volumes of testing materials that pass between the State Department of Education, the schools, and the central office.

SUMMARY TABLE OF TESTS ADMINISTERED COUNTYWIDE

Test	Nature of Test	Recommending/ Requiring Agency	Grade Levels Administered	Nature of Results
Cognitive Abilities Test (Verbal, Quantitative, Non-verbal)	Standardized School Ability Measure.	Board of Education	3, 5, 8	Individual Ability
California Achievement Test	Standardized Achievement Test-Vocabulary, Reading, Language, and Mathematics.	MSDE (Accountability) Chapter I	3, 5, 8	Grade Equivalent, National Percentile Scores
Maryland Functional Reading Test	Reading materials typical of school, work, and daily life.	MSDE (Basic Skills)	7 (Optional) 9	Total Test= Scale scores Subtests= Study area scores
Maryland Functional Mathematics Test	Measure basic mathematics skills (addition through through division of whole numbers, decimals, and fractions; measurement, problem solving).	MSDE (Project Basic)	7 - 12	Total Test= Scale scores Subtests= Study area scores
Maryland Test of Citizenship Skills	Measures students' knowledge of state and national government and the rights and responsibilities of citizenship.	MSDE (Project Basic)	7 - 12	Total Test= Scale scores Subtests= Study scores
Maryland Functional Writing Test	Measures students skill in developing narrative and explanatory writing samples.	MSDE (Project Basic)	7 - 12	Modified holistic scores on each of two writing samples developed by the student
Preliminary Scholastic Aptititude Test (PSAT)	Measures developed verbal and mathematical reasoning abilities important for academic performance in college.	College Board	Optional to juniors	Verbal score Math score (Each on a 20 to 80 point scale)
Advanced Placement Tests (AP)	Measures students' achievement in various advanced placement courses in order to determine whether they should receive credit and/or advanced placement in appropriate courses of study by the colleges they attend.	College Board	Primarily seniors, although some juniors do participate	Scores based upon a five-point scale ranging from 5 (extremely well qualified) to 1 no recommendation
Scholastic Aptitude Test (SAT)	Measures developed verbal and mathematical reasoning abilities important for academic performance in college.	College Board	12	Verbal score Math score (Each on a 200 to 800 point scale)

The Office of Testing and Evaluation performs many functions. Its goal is to return individual student test results (whether scores or lists of skills) to schools within 30 days after testing is completed. Reports of individual student scores are produced for teachers, labels are provided for placement in student cumulative records and on articulation cards, and student profile reports are provided to parents. A variety of reports are compiled for distribution to principals, directors, coordinators, public, press, Board of Education, and state and federal agencies. These reports include school average scores; school performance by skill categories; school trends in performance over several years; school level performance of students with various abilities; and ranges of achievement by grade and content area, by school and by county.

Each type of test result, three copies of which are sent to each school, is accompanied by an explanation of the interpretation and use of the score. Although three copies of individual test results may provide adequate access to scores in elementary schools, in secondary schools three copies may not ensure that all teachers receive or have equal access to test scores.

The processing of test results is a joint responsibility among the Office of Testing and Evaluation, Office of Educational Information Systems, and the Office of Data Processing. Student identification information is printed via the computer on each student's test answer sheet using the most current enrollment listing for each school. Completed answer sheets are read and machine-scored through use of the computer programs written by the Office of Data Processing.

Test results are stored on the computer to provide record keeping of minimum competencies met and to allow trend analyses and profiles of achievement by school and county levels to be conducted each year. All student identification data is held secure and confidential in compliance with procedures adopted by the Management Information Services Committee and as required by confidentiality statutes.

Over the last four years, testing programs have been consolidated in an effort to minimize the amount of instructional time lost to testing. For example, California Achievement Test scores are used for the annual evaluation of Chapter 1, thus eliminating at least one redundant testing program.

In addition to the countywide programs, the Office of Testing and Evaluation serves in a consultant capacity for all school personnel upon request. Samples of typical services provided are the identification of appropriate tests for screening students to receive special services; development and piloting of an instrument to screen gifted and talented students; and the review and recommendation of special tests requested for use at the school level to identify and diagnose reading and mathematics strengths and needs (e.g., Metropolitan Achievement Test, Stanford Diagnostic Tests, and Stanford Achievement Tests).

Another function of the testing office is to offer inservice programs. Each year, inservice sessions are conducted by the coordinator for teachers, principals, parents, and guidance counselors. The topics range in scope to encompass almost all issues related to student testing such as test selection, test construction, test administration, interpretation of test results, use of test results, and factors which can influence students' test scores.

RESEARCH

A review of the literature produced the following findings:

- The quality of standardized published tests continues to improve.

- Standardized achievement tests constructed in recent years produce student and classroom results that are more closely designed to provide teachers with meaningful, understandable, and usable information for planning instruction following the administration of tests.

- As schools become more technologically sophisticated, some tests will be scored and results analyzed at the individual school site.

- Computer Adaptive Testing will become increasingly available and utilized in the near future.

RECOMMENDATIONS

Testing and program evaluation should continue to be an integral component of a quality educational program. New computer technology and software can greatly enhance the efficiency of the testing procedure and of the management of test data.

It is recommended that:

> **THE SERVICES OF THE OFFICE OF TESTING AND EVALUATION BE EXPANDED AND MODERNIZED TO USE TECHNOLOGY AND TESTING PROCEDURES TO ENHANCE THE EFFECTIVENESS OF THE TESTING PROGRAM**

In order to implement the above recommendation, it is proposed that:

- Computer adaptive testing be implemented

- The countywide program evaluation be xpanded beyond the historical basics and include such programs as science and social studies

- A systematic method be developed and implemented which will relate all relevant test data to other student indicators

- School site test scoring and data analysis be implemented

- Student profiles be compiled which incorporate informal and formal test data and that this data be related to other student indicators (e.g., attendance, extracurricular participation, grade point average, etc.)

- The use of tests be carefully considered, directly linked to curriculum, and designed to provide relevant instructional data

- Inservice regarding computer test scoring and analyzing results be provided for school site staff

- On-line computer and print capability with the central office computer be provided for every school

OUTCOMES

With the adoption of the above recommendation, the following outcomes are projected:

- Testing will be more efficient and student specific.

- Students will have instructional programs which meet their needs and which more closely match their abilities, readiness, and interests.

- School site staff will have immediate access to test results.

- Data for instructional decisions will be available on a timely basis.

CONSIDERATION: DATA PROCESSING

PRESENT STATUS

The Data Processing Management Office is responsible for a wide variety of information systems which supply data to the school system for both business applications and student information. That responsibility includes management of a staff of thirty-two people, operation of a central computer with its peripherals, and development and maintenance of software applications as requested by school system personnel.

The office is staffed by a data processing management officer assisted by a supervisor of computer operations, a senior systems analyst, a lead programmer, and an administrative secretary specialist. The remaining staff consists of four computer operators, four control clerks, seven data entry positions, and twelve programmer-analysts.

This office was established twenty years ago with a small, unsophisticated computer and a small staff of people. Since that time a larger, faster, central processor, and many more fixed-function and intelligent terminals attached to that processor have been added. During this time, on-line processing has been replacing batch-oriented processing and users have become more computer literate. However, many major systems remain batch-oriented. Demand for data increases yearly resulting in the present 1144 production programs and 508 files of data and systems libraries.

Most staff development takes place outside the school system through attendance at community college computer programming courses and workshops sponsored by software companies. The school system pays the cost of keeping the staff updated on the latest technology.

RESEARCH

A review of the literature produced the following findings:

- New operating and teleprocessing systems are being and will continue to be developed.

- An increasing number of schools are acquiring their own computers which are on line with central administration mainframes.

- More data processing is being done at individual school and office sites.

- Computer users are becoming more literate and sophisticated.

- The demand for data processing information is increasing at a rapid rate.

RECOMMENDATION

With few exceptions, sophisticated school system and central office users of data processing services want on-line access and file maintenance to data which is on the mainframe. The present 15 year old data base management system is outdated in terms of software and does not easily accommodate both on-line and batch processing. In addition there is a lack of coordination between the Offices of Data Processing, Word Processing and Educational Information Systems.

It is recommended that:

> **DATA PROCESSING SERVICES BE EXPANDED AND ORGANIZED TO MEET THE CHANGING AND INCREASING NEEDS OF USERS AND TO EFFECT COORDINATION BETWEEN THE OFFICES OF DATA PROCESSING, WORD PROCESSING, AND EDUCATIONAL INFORMATION SYSTEMS**

In order to implement the above recommendation, it is proposed that:

- Data Processing staff become thoroughly familiar with the new software packages and turnkey systems being investigated and purchased by end users
- Data Processing staff be encouraged to develop the necessary technical competence to assist in the evaluation and selection of purchased packages, to help in their installation and maintenance, and to train users in their operation
- A complex communications network to include all the schools in the system be developed and/or acquired so that all schools are on-line with the mainframe
- Professional and clerical positions be changed to meet the demands for data
- An Information Center be established to provide schools with a help desk for questions and problems on software and hardware
- Training courses for users of computer services be conducted by Data Processing staff

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Up to date quality software packages will be purchased and effectively used throughout the school system.
- Data will be more readily accessible to schools.
- The amount of paper generated will be reduced.
- School-based and central office personnel will become more effective and efficient computer users.
- The school system will be managed effectively and efficiently.

CONSIDERATION: WORD PROCESSING

PRESENT STATUS

The Word Processing Center coordinates and provides support for the numerous typing and word processing requirements of the central office. - The Center also provides technical assistance and coordination to new users of word processors.

The Word Processing Center is supervised by the Word Processing Manager. Assisting the manager are nine Word Processing Center Operators. Two of the operators are from the Division of Pupil Services, do work only for Pupil Services, but are supervised by the Word Processing Manager.

The services rendered by the Word Processing Center include production, technical support, training, and document retention. Many types of documents ranging from standard form letters to complex data analysis and curriculum guides are produced, revised, and retained at the Center.

RESEARCH

A review of the literature produced the following findings:

- The transfer of information electronically will increase.
- Although keyboarding is now the primary mode of in-putting information into a computer, in the future, input will be by voice activated impulses.
- With more and more information transmitted electronically, there will be a decrease in the use of paper.

RECOMMENDATION

The school system will continue to generate reports and projects which can be most effectively handled by a central word processing center. However, the number of satellite stations will increase and there will be an increased need for technical assistance and proofreading.

It is recommended that:

> **THE WORD PROCESSING CENTER PROVIDE THOSE SERVICES WHICH IT CAN HANDLE MORE EFFICIENTLY AND EFFECTIVELY THAN CAN SATELLITE STATIONS**

In order to implement the above recommendation, it is proposed that:

- The existing "stand-alone equipment" currently in use within the Word Processing Center be phased out in order to achieve compatability with satellite equipment and other office automation equipment
- A networking system to provide word processing and related services be implemented throughout the school system
- The central services and word processing equipment be used to expedite the production of paper copies

- Technical assistance be provided by the Word Processing Center for users and satellite centers for office automation

- Guidelines be established that will provide a uniformity and consistency of formatting for all materials being developed within the Word Processing Center, as well as by satellite word processors

- More effective methods of proofing be implemented

- The existing Word Processing Line Count Report be redesigned in order to more accurately assess the kind, type and amount of word processing services being provided for each office

- Retention and retrieval of major documents be a function of the Word Processing Center

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Production of work will be expedited.

- Quality of work will be improved.

- There will be word processing compatability throughout the school system.

- Technical problems will be taken care of promptly.

- Materials developed will have a uniform and consistent format.

- An accurate accountability system will be implemented.

CONSIDERATION: RESEARCH

PRESENT STATUS

The Research Office provides support services to the school system in the areas of educational research data and its uses. The major function of the office is to assist and support instruction by gathering data and by supplying information to individuals requiring or desiring it for decision making. The total spectrum of tasks required to gather and to disseminate information is used by the Research Office. These tasks include reviewing and disseminating educational research data, reports, and articles; designing, developing, and coordinating school system initiated research, program evaluations, and school/staff/community surveys; analyzing and interpreting data; writing and presenting research, evaluation, and survey reports; and monitoring and evaluating all requests to conduct research from the staff, graduate students, universities, research organizations, and government agencies.

The Research Office is supervised by a coordinator. Requests for assistance from the Research Office to conduct research, evaluations, and/or surveys come from a variety of sources both within and outside of the school system. The coordinator uses the school system research policy to establish an agenda and task priorities for requests requiring three or fewer working days; requests requiring more than three days to complete are reviewed by the Director of MIS. The tasks and services provided by the Research Office include both one-time projects (such as program evaluation) and ongoing projects (such as inservice presentations or analyses of an annual survey). Assistance in completing tasks is provided by a senior administrative secretary; by a technical assistant in research, testing, and evaluation; and by the resources available in data and word processing. Other assistance is provided as needed by outside clerks and/or consultants contracted on an individual basis to code data, summarize surveys, or serve as an outside expert on a program evaluation.

A review of projects recently completed provides a more detailed view of the specific types of tasks and services which are the domain of the Research Office. Some of the projects in recent years have included curriculum evaluations (vocational education, science, mathematics, and English language arts); evaluations of the instructional effectiveness of school system positions (teaching principal and permanent substitute); processing all requests from graduate students, colleges, universities, test publishers, research organizations, and government agencies to conduct research using the staff, students, and data in the school system; providing inservice to central office and school-based staff on a variety of topics (test score trends, using standardized test results to improve instruction, improving teacher-made tests, scoring teacher-made tests, and assigning letter grades to students); survey development and the analysis of survey data (Instructional Leadership Project School Climate, Two-way Cable TV Instruction, Driving While Intoxicated, Drug Education, Staff Development Needs of Department Chairpersons, community surveys related to grade organization and small senior high schools, elementary report card revisions, and effective schools); coordinating the county administration of the Maryland Gallup Poll; coordinating the participation of schools in the norming and standardization of ability and achievement tests; assisting the staff in school-based applied instructional research (integrated reading and writing on reading comprehension, oral communication apprehension among special education students, the characteristics of retained and nonretained kindergarten students, and adolescent suicide); and analyzing data (Maryland Observational Screening Checklist for Kindergarten screening patterns by age, sex, school, and time of year).

RESEARCH

A review of the literature produced the following findings:

- Advances in technology coupled with an increased awareness of what technology can provide are expanding the capabilities of and the demands made on research offices.
- There is a need for school systems to be responsive to greater diversity in information needs.
- There is an increase in requests to school systems to provide information appropriate to a greater diversity of audiences.
- Research offices will use simulations to enhance predictions regarding the consequences of a sequence of actions or decisions.
- The technology exists for educational decision-makers to have available to them a large, integrated information system.

- Parents, employers, and other citizens are demanding more information and are asking specific results-oriented questions concerning the school system and its ability to meet the needs of students, especially in the area of program evaluation.
- Some research offices provide teachers with assistance in the conducting of original research within the schools.
- There is an increase in the use of qualitative research metholodogies in educational research.

RECOMMENDATION

As demands for educational excellence and accountability increase, the research office will increasingly be called upon to provide large amounts of information for decision-making purposes. This office will also need to identify critical research needs, establish priorities, conduct studies, and advocate the implementation of the findings. In addition, the research office will be requested to get more involved in supporting various research efforts by employees and outside agencies.

It is recommended that:

THE RESEARCH OFFICE RESPOND TO THE RESEARCH NEEDS OF THE SYSTEM

In order to implement the above recommendation, it is proposed that:

- The most modern technology be utilized by the Research Office in order to adequately respond to information needs
- Familiarity with and use of qualitative data analysis techniques, such as ethnography and content analysis, be increased
- Qualitative data analysis be combined with current techniques in quantitative analysis
- Anticipated information needs and capabilities be critically reviewed
- An information request management system such as an information center be developed and implemented to educate information users and eliminate duplication of services
- Instructional and administrative data be gathered in a more useful form in order to facilitate decision-making
- More inservice opportunities be offered for the staff on the uses of information
- A student history file be designed and implemented
- Techniques for program evaluation be broadened to include more input from parents, employers, and other citizens
- Measures of curriculum implementation be added to evaluation models to ensure a curriculum is in place before it is evaluated

- Greater commitment be made to using evaluation findings to improve curricula and instruction

- Research findings be shared more widely with the instructional staff

- More and better applied and learning research from outside persons and agencies wanting to conduct research within the school system be supported

- The technical knowledge and resources of the Research Office be used to support the teacher as a researcher in the classroom and be used to support other staff needs

- The broadening data base be used together with psychometric techniques to assist teachers and administrators in targeting students' instructional needs, abilities, readiness, and learning styles

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The Research Office will have the most modern technology to respond to information needs.

- There will be a greater number of quality research studies conducted in the school system.

- More teachers will become actively involved in research in the classroom.

- Information will be more accessible and useful.

- Staff will more readily utilize research findings.

- Research will be applied to improve programs throughout the system.

- Instructional and administrative decision-making will be facilitated.

- Curriculum implementation will be improved.

- Students will benefit from curricula which more closely meets their needs, and which more closely matches their abilities, readiness, and learning styles.

PROGRAM AREA: MATHEMATICS

BACKGROUND

In the fall of 1983, the K-12 mathematics program was evaluated by the Office of Research. The two-year evaluation process covered three main areas: curriculum; instruction; and performance, attitudes and later success of students. In addition to the intensive involvement of the staff and students, outside consultants were employed to evaluate the program.

As a result of this evaluation, several recommendations were generated to address the areas of mathematics curriculum and instruction.

Within the area of curriculum it was recommended that:

- The unified mathematics titles (grades 9-12) be replaced with descriptive course titles and that curriculum guides be developed for each course
- The Computer Mathematics Curriculum Guides be revised to reflect a focus on mathematics content rather than computer literacy and programming skills
- The Mathematics Scope and Sequence, grades K-8, be revised to reflect current trends in mathematics, and curriculum guides for each grade level be developed in the standard format
- Introduction to Algebra (grade 6) be replaced with a more comprehensive offering for highly able students

Staff development recommendations included the following:

- Provision of inservice opportunities for staff on:
  - problem solving at all grades and for all ability levels
  - statistics
  - instructional techniques for remedial classes
  - effective uses of curriculum guides
  - improved student performance on standardized tests
- Continuation of emphasis on the effective use of instructional time
- Incorporation of the use of calculators and computers as instructional tools into the mathematics classes at all ability levels

The following areas of consideration will be specifically delineated:

- problem solving
- calculators
- computers
- probability and statistics
- geometry
- historical topics
- effective mathematics instruction

It is felt that these areas should receive more intensive attention in the years ahead to provide the desired outcomes.

CONSIDERATION: PROBLEM SOLVING

PRESENT STATUS

Many students exhibit a lack of confidence when presented with a mathematical problem to solve. Problem solving is frequently a minor part of the mathematics instruction in both elementary and secondary schools. It is often relegated to the end of a skills unit or presented as a short separate unit.

The current curriculum is being written to include problem solving as a major emphasis at all grade levels. The problem solving activities are integrated into the curriculum and are to be taught in context rather than in isolation.

RESEARCH

A review of the literature produced the following findings:

- Problem solving is important for all students and should begin early in their mathematical experience.
- A mathematics program in which problem solving is the focus will improve students' problem solving skills.
- Student success at problem solving is a function of cognitive development, previous experience in mathematics, and impressions of mathematics.
- Students can improve their problem solving ability by following specific guidelines, in particular, Polya's four phases of problem solving which may serve as a model:
  - understanding the problem
  - devising a plan
  - carrying out the plan
  - looking back at the solution
- Systematic instruction in a variety of problem solving approaches, strategies, and techniques can improve students' problem solving skills.
- The calculator and the computer are invaluable tools in teaching problem solving.
- Motivational materials and sets of similar kinds of problems are essential components of an effective problem solving program.
- Textbooks and commercial tests concentrate on correct responses rather than appropriate problem solving processes.

RECOMMENDATION

Problem solving should continue to be the focus of the mathematics program. To improve students' problem solving skills, teachers must use an approach that is highly structured, yet flexible, and that encourages a variety of styles, strategies, and techniques.

It is recommended that:

PROBLEM SOLVING BE THE MAJOR FOCUS OF THE MATHEMATICS PROGRAM

In order to implement the above recommendation, it is proposed that:

- Elementary and secondary staff development programs be expanded to acquaint teachers with:
    - specific guidelines for problem solving
    - various problem solving techniques and strategies
    - attributes of the successful problem solver
    - goals for achieving success in problem solving
    - types of materials and activities which emphasize problem solving processes
- Mathematics units be restructured to center on problem solving
- Current and future materials be identified which emphasize problem solving processes
- Motivational materials and activities be developed to teach problem solving at each grade level
- Sets of related problems be developed which have similar mathematical structure and content, and which require similar solution strategies
- Problem solving software be identified which has branching capabilities allowing for student differences in educational background, computational ability, problem solving styles, and rate of progress
- Problem solving software be available for each grade level
- Resource teachers be used to assist teachers in implementing the problem solving approach

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will have increased proficiency in reading and understanding mathematical problems.

- Students will acquire the ability to see quickly and accurately the mathematical structure of a problem and to develop a plan for the solution.

- Students will have increased facility with a wide variety of problem solving strategies and techniques and be able to generalize across a wide range of problems.

- Students will be able to solve problems and will exhibit interest and curiosity in solving mathematical problems.

CONSIDERATION: CALCULATORS

PRESENT STATUS

There is at least one classroom set (30) of calculators in every school in the county.

Calculator workshops and inservice programs have been made available to county teachers over the past seven years. Teachers are generally capable of using calculators as a tool for mathematical instruction.

Calculator activities and materials have been developed, printed, and distributed to the schools. These materials serve to supplement the existing mathematics curriculum.

RESEARCH

A review of the literature produced the following findings:

- At least 80% of thirteen-year-olds and 85% of seventeen-year-olds either own or have access to calculators.

- Students who use calculators in the mathematics classroom on a regular and consistent basis are more highly motivated and spend more time on task. Consistent calculator use also encourages student curiosity and interest in mathematical experimentation.

- Calculator use at both the elementary and secondary school levels facilitates, rather than harms, the acquisition and retention of computational skills.

- Mathematical ideas, concepts, and problem solving skills can be more effectively taught if freed from the constraints of paper and pencil arithmetic computation.

- Students who use calculator-specific materials in a calculator-integrated curriculum show significant gains on achievement tests. However, when calculators are used just to supplement existing curricula, current research shows no significant improvement in problem solving skills or in understanding mathematical concepts.

- At the elementary school level, calculators are used for checking computational work, motivation, calculation, and exploratory activites. At the secondary level the predominant use, in addition to calculation and games, is the development and teaching of mathematical ideas and concepts.

- Calculators are a tool for evaluating student strengths and diagnosing mathematical misconceptions and difficulties.

- Children who use calculators in instruction do not develop debilitating fear when tested without calculators.

- Students must have a good background in manipulative mathematics experiences before they can understand the inputs and the outputs of the calculator.

RECOMMENDATION

The use of calculators as a supplement to mathematics instruction enhances computational skills. Consistent classroom use of calculators provides increased student motivation and encourages curiosity about and exploration of mathematical ideas. Therefore, calculators should be available to students. In the two important areas of understanding mathematical concepts and problem solving skills, studies where calculators are used as supplementary tools are inconclusive. However, there is strong evidence that a completely integrated calculator curriculum provides increased understanding of mathematical concepts and increased achievement in problem solving skills.

It is recommended that:

> **CALCULATORS BE USED AS AN INTEGRAL PART OF THE MATHEMATICS PROGRAM, K-12**

In order to implement the above recommendation, it is proposed that:

- Low achieving students be provided with calculators so probability, statistics, functions, graphs, and coordinate geometry can be introduced without the constraints of computational proficiency

- More applications be used which will exploit the full potential of calculators in both elementary and secondary courses

- The use of calculators be increased in grades K-12 to promote the acquisition and reinforcement of computational skills

- Calculators in grades K-12 be used to explore, discover, and develop mathematical concepts and skills when applicable

- Calculators be used to strengthen estimating skills

- One classroom set of calculators per mathematics instructor be supplied

- The use of calculators be encouraged not only as a supplementary tool, but also as an integral part of instruction

- Sufficient assistance be provided to teachers in incorporating the use of calculators into the mathematics instructional program

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will have increased proficiency in computational skills.
- Students will have increased understanding of mathematical concepts and ideas.
- Students will have greater problem solving skills.
- Students will exhibit increased interest and curiosity in learning mathematics.

CONSIDERATION: COMPUTERS

PRESENT STATUS

Computers are accepted throughout the K-12 mathematics curriculum as necessary instructional equipment. Computers are used for drill and practice, problem solving, and programming activities.

Currently there is at least one computer lab in each high school designed to support instruction in all major subject areas. The labs are equipped with from 12 to 30 computers and are located in, or in an area accessible to, mathematics departments. Most scheduled lab time is used for mathematics/computer science instruction.

There are an average of 37 computer mathematics classes taught each semester throughout the county which provide instruction for approximately 1,500 students per year. These classes currently include instruction in BASIC, FORTRAN, or PASCAL programming languages with an emphasis on mathematical applications.

At the elementary school level, students obtain computer literacy skills through the implementation of the K-6 computer curriculum. As a new curriculum is written for mathematics, computer use and software are referenced wherever applicable in the curriculum guides.

Inservice programs which are now in place have been designed to familiarize teachers with the use of computers in mathematics and to teach instructional strategies as they relate to computer use in mathematics. The range of abilities of teachers to implement computers in the curriculum varies widely.

RESEARCH

A review of the literature produced the following findings:

- Computer equipment with essentially instantaneous numerical/logical operations is becoming increasingly accessible to everyone.
- Programs now available for use on microcomputers can perform almost all the symbolic manipulation necessary in academic mathematics classes through calculus. How to best use this technology is a challenge which faces mathematics educators.
- Computers have been successfully used to teach mathematics concepts, to provide drill and practice, to simulate experiences not possible without a computer, and to help students learn strategies to use in problem solving. Computers offer great promise for promoting instruction of high-order thinking skills.

- Because computers are able to process large blocks of data almost instantaneously, instruction in the mathematics classroom may shift from paper-pencil algorithms to an emphasis on conceptual understanding and the development of problem solving strategies. Students must develop enough numerical skills to understand the processing of information and to evaluate computer-generated results.

- Hands-on experience with computers should be provided for all students K-12.

- Instructional approaches like LOGO, where children are in control of the computer, yield the psychological benefits of improved self-concept, reduction of dependence, and self-management of behavior and learning.

- The greatest single factor determining the effectiveness of computers in instruction is the classroom teacher.

- The major obstacles to implementation of computers in instruction have been a lack of adequate teacher training, a lack of funding, and an inadequate supply of quality software.

RECOMMENDATION

Computers are valuable tools in mathematics instruction. They provide a means to introduce and reinforce mathematical concepts and enable students to explore a wider variety of problem solving strategies. However, at the senior high level, their use in the mathematics program continues to be mainly in computer mathematics classes. To make effective use of computers throughout the mathematics program, there is still a need for a broader understanding and acceptance of the advantages of the computer as an instructional tool, for readily available software and activities which support the curriculum, for teachers skilled in using the computer as a tool for teaching mathematics, and for additional equipment.

It is recommended that:

> **COMPUTERS BE USED AS AN INTEGRAL PART OF MATHEMATICS INSTRUCTION, K-12**

In order to implement the above recommendation, it is proposed that:

- Computer oriented activities be incorporated throughout the mathematics program to explore, discover, reinforce, and apply mathematical concepts

- Activities that highlight the processes and procedures of discrete mathematics be incorporated into the computer mathematics course

- Criteria be established for all mathematics teachers which can be used to demonstrate competency in using the computer as a tool in mathematics instruction. Criteria at various levels of schooling should be different.

- Schools be kept adequately supplied with appropriate computer hardware and software

- Curriculum guides for Computer Mathematics I and II be revised to emphasize the use of the computer as a problem solving tool in mathematics

- Inservice programs be provided which emphasize strategies for using the computer as an instructional tool throughout the mathematics curriculum

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will exhibit an increased understanding of mathematical concepts.
- Students will acquire improved problem solving skills.
- Students will acquire skills which will provide them more opportunities in the job market.

CONSIDERATION: PROBABILITY AND STATISTICS

PRESENT STATUS

Probability is a mathematical discipline used to quantify and explore the likelihood of chance occurrences. Closely related to probability is the study of statistics which is used to organize and interpret sets of data. Statistical procedures are used to determine whether or not an observed difference is significant. These two disciplines are invaluable as they provide a basis for decision-making.

The new mathematics program for K-12 acknowledges the importance of probability and statistics by including objectives related to these disciplines throughout the scope of the program. Additionally, the approved texts for various levels of the curriculum contain statistical and probabilistic items throughout most books.

A one-semester course in probability and statistics is offered as an elective in the senior high school after the completion of Algebra II. However, due to low enrollment, the course is not conducted in some high schools. In addition to this course, instruction in the concepts of probability and statistics is provided in other high school mathematics courses such as Mathematics 9, Mathematical Applications, and Algebra II. In the middle schools, teachers present a unit on probability and statistics for about a two week time period. Sufficient materials now exist for this unit and the current level of emphasis is perceived to be adequate and appropriate. At the elementary school level the concepts of probability and statistics are integrated in the mathematics curriculum.

The mathematics office currently offers a workshop designed to help teachers deal with the concepts of probability and statistics and apply them in their classrooms. Moreover a curriculum guide is scheduled for development to aid teachers in presenting these topics in the senior high course.

RESEARCH

A review of the literature produced the following findings:

- In a society in which people constantly encounter numerical data, it is imperative that they be able to interpret it. Hence, basic concepts of probability and statistics should be acquired by everyone.

- There is general agreement among mathematics educators as to which skills related to probability and statistics should be acquired by students. They include exploring data for patterns; reading and interpreting graphs, tables, and charts; representative sampling from populations; descriptive measures such as mean, median, mode, and standard deviation; likelihood of future events; how mathematics is used to help make predictions such as election and weather forecasts; ability to extrapolate and interpolate and to know when extrapolation and interpolation are justified; and testing hypotheses using both parametric and non-parametric statistical methods (those which do, and do not, assume a particular population distribution).

- Studies indicate that children acquire some of the basic concepts of probability quite early (6-8 years old) and that by the seventh grade they may be able to acquire knowledge of some of the abstract theory of probability. Therefore, it is feasible to teach probability concepts at all grade levels.

- Statistical concepts which can be acquired early center on descriptive statistics and involve the processes of counting, collecting, measuring, classifying, comparing, recording, displaying, interpreting, and representing. Hence, it is feasible to integrate statistical concepts very early in a child's school experience and continue them throughout the K-12 mathematics program.

- The interdisciplinary nature of probability and statistics provides an excellent vehicle for showing how mathematical concepts are applied to other disciplines. Applications involving actual data are made feasible with the use of computers and calculators and provide an opportunity for teachers of subjects other than mathematics to help reinforce mathematical concepts.

- Consumer and career applications of probability and statistics offer a means by which student attitudes toward mathematics might be improved.

- Use of experiments, simulations such as Monte Carlo methods, and other activity-based instructional strategies in probability and statistics have been found to result in better student attitudes. Achievement has not been found to increase significantly using these activities. Trends do, however, favor activity-based strategies of instruction and many activities are available to teachers through various sources.

RECOMMENDATION

It is recognized that the understanding of basic skills and concepts in probability and statistics is necessary for intelligent, objective decision-making in today's consumer-oriented, information-based society, and that these skills and concepts can begin to be acquired at an early age.

It is recommended that:

> **PROBABILITY AND STATISTICAL CONCEPTS BECOME AN INTEGRAL PART OF THE MATHEMATICS CURRICULUM, K-12, AS WELL AS BE APPLIED TO OTHER APPROPRIATE PROGRAM AREAS**

In order to implement the above recommendation, it is proposed that:

- More instructional time be allocated to probability and statistics within the mathematics program
- Some concepts of probability and statistics be taught in the elementary grades so that students gain an intuitive understanding of probability and statistics by grade six
- Inservice programs be established for teachers at all grade levels which will acquaint them with appropriate content and instructional strategies needed to teach probability and statistics to their students
- The power of technology be utilized to process and analyze data resulting from probability studies
- Objectives to be taught at specific grade levels be identified and that materials, activities, and suggested lessons in support of those objectives be developed and/or located for all grade levels
- A county collection of computer programs which simulate, develop, and apply probabilistic and statistical concepts be established
- A curriculum guide be written for the high school probability and statistics course. The focus of the guide would be to provide content and materials that would make the course activity oriented.

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will be able to collect, organize, analyze, and interpret numerical data.
- Students will be able to apply concepts of probability and statistics to make informed decisions based on numerical data.
- Students will be able to apply probability and statistical concepts in solving problems which arise in other program areas, as well as outside of classroom situations.

CONSIDERATION: GEOMETRY

PRESENT STATUS

Geometry is a major strand in each grade level in the K-8 Mathematics Scope and Sequence Charts. Curriculum guides which include geometry as a major topic are being developed at each grade level to correlate with the Mathematics Scope and Sequence Chart.

In addition to the Mathematics Scope and Sequence Chart and the K-8 Mathematics Curriculum Guides, a specific two-semester course in Fused Geometry is offered as a core course at every secondary school with Algebra I as a prerequisite. Fused Geometry at the secondary level was written to develop formal deductive reasoning skills. Units of geometry are found in other secondary mathematics curricula (e.g., Mathematics 9). These units are required topics.

Currently inservice programs are being offered to all K, 1, and 2 mathematics teachers to implement the Scope and Sequence Chart and the Mathematics Curriculum Guides. Similar training will be provided to mathematics teachers in grades 3-8 within the next two years.

RESEARCH

A review of the literature produced the following findings:

- Geometry lacks popularity among high school students. Many rate the subject unimportant and they dislike doing proofs.
- Very few secondary students reason at the formal deduction level successfully. About 50% of the students see no need to prove what they consider obvious.
- Microcomputers can be useful tools in the discovery of patterns and in the visualization and recognition levels of reasoning.
- Microcomputers can be useful tools in the analysis level of reasoning.
- A transformational approach to geometry produces the following results:
  - No loss occurs on standard Euclidean content.
  - Retention of congruence, similarity, and symmetry a year later, and transfer to relations and functions are improved.
  - Both high and low achievers can learn from materials using a transformational approach.
- Special features, such as historical biographical materials, rarely appear in existing curriculum.

RECOMMENDATION

The Priorities in School Mathematics Survey (NCTM 1981) outlines the goals of geometry instruction. Those responding believe geometry is primarily taught to:

- develop logical thinking abilities
- develop spatial intuitions about the real world
- develop content needed to study more mathematics
- develop skills in the interpretation and development of mathematical arguments

Research indicates that these goals as a whole are not being attained successfully for the majority of students in existing geometry courses. Geometry curriculum should include activities designed to move students successfully from one level of thinking to the next higher level.

It is recommended that:

THE MATHEMATICS CURRICULUM BE DEVELOPED TO INCLUDE ACTIVITIES THAT WILL SUCCESSIVELY MOVE STUDENTS THROUGH THE THREE INFORMAL LEVELS (VISUALIZATION, ANALYSIS, AND ORDERING) OF GEOMETRIC REASONING AS READINESS FOR THE FOURTH LEVEL OF REASONING — FORMAL DEDUCTION (A PRIMARY OBJECTIVE OF GEOMETRY INSTRUCTION)

In order to implement the above recommendation, it is proposed that:

- Informal geometry be introduced and sustained at the elementary and secondary levels. This would include (in order) the following levels of reasoning about geometric concepts:
  - Visualization and recognition: the geometric figure is seen as a whole and no attention is given to its components
  - Analysis: the identifying of properties of geometric figures through induction
  - Informal deduction (ordering): the selection of sufficient information to make an inference
- Geometry content offered at elementary and middle/junior high school levels be increased to allow more time for investigation and exploration
- The use of computers and existing software be increased in geometry instruction to facilitate visualization and analysis
- There be utilization of a transformational approach to geometry -- correlated with computer assisted instruction -- in the following areas:
  - recognition and identification of geometric figures and their properties
  - similarity of geometric figures
  - congruence of geometric figures
  - construction of geometric figures
- Formal deduction in geometry be delayed until students have been successfully moved through the three basic levels of reasoning (visualization, analysis and ordering)
- Historical and/or biographical notes be infused into the content of geometry that highlight different geometric systems
- Geometric reasoning skills be developed parallel with arithmetic skills
- Objectives to be taught at specific grade levels be identified and materials, activities, and suggested lessons in support of those objectives be developed and implemented for all grade levels

- The collection of computer software which will simulate, develop and apply geometric concepts be enlarged

- Inservice programs be designed to train teachers in the development of activities to implement the appropriate level of geometric reasoning at the appropriate grade level

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will be able to visualize and recognize geometric figures.

- Students will be able to identify properties of geometric figures.

- Students will be able to select sufficient information to make inferences.

- Students will be able to interpret and develop mathematical arguments.

- Students will be able to apply geometric principles to practical situations.

CONSIDERATION: HISTORICAL TOPICS

PRESENT STATUS

The study of historical topics in mathematics enables the student to become aware of the processes involved in the development of mathematics and the personalities and thought processes of mathematicians. By discussing the historical development of a particular mathematical principle, the teacher can alleviate to some extent the anxieties about the learning and use of mathematics, and lessen the esoteric nature of the discipline.

The new K-12 mathematics program encourages the incorporation of historical topics. As a new curriculum is written for mathematics, historical topics are referenced when appropriate. Teachers are encouraged to utilize books on the history of mathematics, as well as historical anecdotes included in texts.

A recent "History of Mathematics Lecture Series" afforded many of the mathematics teachers the opportunity to strengthen their backgrounds in historical topics and acquire materials appropriate for classroom use.

RESEARCH

A review of the literature produced the following findings:

- The history of mathematics has been used successfully to introduce and supplement mathematical topics.

- Historical anecdotes give a different, sometimes amusing, perspective on current practices.

- Historical items show the insight, ingenuity, and creativity of past mathematicians.

- Mathematics teaching can be humanized by the inclusion of historical perspectives in classroom discussion.
- Insight for understanding of a particular mathematical concept can be provided by presenting an historical overview of the concept's development.
- There exists an abundance of sources containing historical items and suggestions for use in the classroom.

RECOMMENDATION

A solid background in mathematics is a necessity in today's society. One way to encourage students to take as much mathematics as possible is to incorporate historical items relating to mathematics throughout the curriculum. By removing some of the mystery students perceive as surrounding the study of mathematics, the history of mathematics can provide a valuable vehicle for maintaining and increasing student interest and motivation and enable teachers of mathematics to reach a larger audience.

It is recommended that:

> **THE HISTORY OF MATHEMATICS BE INCORPORATED INTO THE MATHEMATICS CURRICULUM**

In order to implement the above recommendation, it is proposed that:

- Sources of historical items for K-12 mathematics be identified
- Activities continue to be incorporated into the curriculum which relate the history of mathematics to existing learning objectives
- Historical emphasis be included in various staff development programs for teachers of mathematics K-12
- Appropriate sets of materials containing historical items in mathematics be available for teacher and student use

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will demonstrate an increased understanding of the contributions of mathematics to society.
- Students will acquire an increased knowledge of the origin and development of mathematical concepts and procedures.
- Students will exhibit improved attitudes about and increased motivation to learn mathematics.

CONSIDERATION: EFFECTIVE INSTRUCTION

PRESENT STATUS

The methods of instruction in mathematics throughout the county differ greatly from school to school and from teacher to teacher.

In the elementary schools the instruction follows either a single group or two group model within the classroom. At the secondary level, the most commonly used model is that of whole class instruction with provisions made for individual differences.

RESEARCH

A review of the literature produced the following findings:

- There are significant differences between effective and ineffective mathematics teachers. These differences involve not only teacher preparation but teacher attitudes, expectations, classroom presentation, and classroom organization. In contrast to the ineffective teacher, the effective mathematics teacher:
  - Devotes at least one-half of each period to demonstration, hands-on activities, discussion, and lecture. There is more teacher-class interaction and more student participation in teacher led discussion.
  - Uses a variety of different types of questions to develop and reinforce skills and concepts. These include:
    - process questions which call for explanations
    - product questions which call for short answers
    - new questions as follow-up to correct answers
  - Consistently encourages and reinforces students' questions and requests for help
  - Defines mathematical terms carefully and uses vocabulary words precisely. The why and the how in solving problems is clearly explained. The sequence and continuity of skills and concepts within the mathematics curriculum is stated frequently.
  - Has higher expectations for students. Homework is assigned frequently. More academic encouragement is given and concern for academic achievement is stated often.
- Recent studies have shown that the mathematical ability of American elementary and high school students does not compare favorably with other industrialized nations. Researchers have attributed the low performance to a variety of academic and cultural causes including the following:
  - Elementary and junior high school mathematics curricula are repetitious and dwell too long on basic arithmetic at the expense of more demanding topics.
  - Americans place less importance on mathematics than they do on reading and other subjects.

- Ability grouping condemns many to classes in which low expectations become self-fulfilling prophesies.

- American students and parents have attitudes about what produces success in math that are different from students and parents in other countries, especially in Asia. While the Japanese and Chinese believe that people are basically alike and that the difference between success and failure is due to how hard one works, Americans generally ascribe more importance to native ability, thus, they have less incentive to work hard in school.

RECOMMENDATION

Recognizing the diversity in individual teaching styles, there are certain practices that are validated by research as being most effective and essential to successful mathematics instruction.

It is recommended that:

MATHEMATICS INSTRUCTION BE UPGRADED BY EMPHASIZING EFFECTIVE USE OF INSTRUCTIONAL TIME

In order to implement the above recommendation, it is proposed that:

- Practices which are considered to be most effective for mathematics instruction be identified

- The amount of time allocated to mathematics instruction at the elementary level be increased. Daily time allocations of 45 minutes in the primary grades and 60 minutes in the intermediate grades be devoted to mathematics instruction.

- Staff development designed to make teachers aware of effective teaching strategies and procedures be provided

- Mathematics resource teachers be assigned to specific elementary schools at a ratio of one teacher to two schools. These resource teachers should:

  - assist the classroom teacher in areas such as successful teaching strategies, effective questioning techniques, and short term and long range planning

  - assist in diagnosing and evaluating student difficulties in mathematics

  - plan and implement programs of remediation

  - develop and implement special programs for the gifted and highly able

  - arrange and conduct inservice training for teachers

- The student/teacher ratio be adjusted to accommodate students according to needs

- Resource assistance continue to be provided at the secondary level

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- A larger percentage of students will demonstrate success in mathematics.
- A larger percentage of students will demonstrate competency in the Maryland Functional Mathematics Objectives.
- Students will have a more positive attitude toward mathematics and will have increased confidence in their own mathematical abilities.
- Student interest and curiosity in mathematics will be heightened.
- Teachers will experience greater satisfaction in teaching mathematics.

PROGRAM AREA: MUSIC

PRESENT STATUS

The music program offers a variety of musical experiences for all children. All schools provide instruction to help students gain skills, knowledge, and appreciation of music while actively participating in the making of music. Students have opportunities to sing; to play instruments; and to listen to, compose, and interpret music at levels appropriate to their capabilities. Students also read music, learn to understand its relation to cultures and to make musical judgments. Instruction is available for individuals, small groups, and large groups. Performing groups may be organized according to the musical experience and ability of students. For talented students who wish to pursue a musical career or participate in musical activities in their leisure time, advanced courses and special opportunities are offered.

A General Music Curriculum Guide defines the K-12 music curriculum, while guides designed for various levels and the different types of music offerings give more specific guidelines and directions.

In addition, curriculum documents are nearing completion for band, orchestra, chorus, guitar, and keyboard. The first three -- band, orchestra, and chorus -- develop a sequence of instruction from entry level in the elementary school through the senior high school. Guitar and keyboard are offered only in grades 9-12. At present the five curricula are being enhanced in the areas of creativity, understanding music in the perspective of history and culture, and making musical judgments. Credits earned through completion of these music courses may be applied towards the Maryland State Department of Education fine arts requirements for graduation. There are also senior high guides for Musicianship (music theory), History of Music, and Current Music in Perspective I & II.

Evaluation of progress in elementary general music is done for the individual student as well as for entire classes. Teachers are requested to keep an ongoing record of class progress using the checklist of objectives which appears at the beginning of each grade level in the elementary general music curriculum. Sample musicianship tests are provided to assess level of accomplishment for performance in the curricula of band, orchestra, chorus, guitar, and keyboard. In middle/junior high schools, general music teacher-produced tests are used to evaluate the units. In elementary band and chorus programs, the curriculum is structured and students are graded individually.

All elementary school students, except those in kindergarten, are scheduled for general music instruction for two 30-minute periods each week. The kindergarten program does not have a specific time allotment for music, although it has objectives and specifies ways to integrate music activities into the curriculum. Kindergarten and pre-kindergarten are the only grade levels where music instruction is not provided by a music teacher. In addition to general music, students in grade 3 may begin string instrument instruction. Starting in grade 4, students may choose to take wind or percussion instrument instruction. Students who elect to take instrumental music are usually pulled out of the regular classroom for two thirty minute periods per week on a rotating basis even though the guidelines recommend instruction for two 45 minute periods. Choral instruction is offered the last two years of the elementary school for two 30 minute periods per week. Instrumental and choral opportunities are part of the curriculum and appear on student report cards. Scheduling procedures, special duties, and responsibilities of music teachers are covered in General Operational Guidelines for Instructional Personnel in Special Areas in the Elementary Schools (1975) and A Guide for Teaching in the Elementary School (1977).

At the middle/junior high school level, students take two of the following three courses each year: music, physical education, or foreign language. Students may select from general (exploratory) music, instrumental music, and chorus.

At the senior high level, there are a variety of music courses offered. Band, Orchestra, Chorus, Keyboard, Guitar, and Current Music in Perspective are offered as options to all students. Other electives such as History of Music, Musicianship (music theory), and Musical Theater are available where there is sufficient student interest to establish a class. Band, Orchestra, Chorus, Keyboard, and Guitar are each offered at four levels of skill development. There are also options for class organization into homogeneous or heterogeneous instrumental and vocal ensembles.

There is not always provision for continuity of skill building from elementary to middle/junior to senior high level. For example, string teachers provide basic instruction at the elementary level and students may select courses relating to strings at the middle/junior/senior high level. However, not every secondary school offers a string instruction program and in some cases the minimum enrollment figure for a class causes cancellation. Hence, sometimes students are denied an opportunity to continue receiving instruction. The same situation may occur with other curricular offerings that are recommended for a balanced certificate program. In addition, scheduling conflicts in the secondary schools may hinder students from taking music classes. The six-instructional period day may make it extremely difficult for a student to enroll in a music class each semester. Many times a particular music class may be offered during only one instructional period and may not be available each year.

The relationship between class instruction and extracurricular activity is very close and separation is frequently hard to distinguish. The majority of students enrolled in performance emphasis courses also participate in concerts, festivals, all-county ensembles, and state level activities. Those enrolled in instructional classes perform repertoire learned in class during extracurricular band, orchestra, and chorus rehearsals. Conversely, ensembles which are scheduled during the instructional day will have sectional rehearsals and drill on repertoire and skills before and after school. Many students who have difficulty scheduling music still participate on an extracurricular basis. The Course Descriptions booklet for senior high school students indicates clearly in the Band, Orchestra, and Chorus descriptions that "public musical performances will be expected." Extracurricular activity in music is an extension of the classroom instruction and curriculum. Formal extracurricular options exist in chorus, concert band, marching band, stage band, majorettes, pom poms, and musical theater. Scheduled and extracurricular groups often perform in "good will" and articulation concerts to provide services to feeder schools and the community and for the recruitment of new participants.

Throughout the year, a select number of festivals, concerts, and countywide rehearsals are scheduled during the school day. Usually these feature guest conductors or adjudicators. They provide opportunities for musical experiences and growth not available to students in their schools and may be the basis of stimulation for a lifetime of involvement and enhanced sensitivity to music.

Entrance into certain courses at all levels may depend upon the student meeting certain requirements. For example, entrance into a secondary school chorus may depend upon having both the interest and certain basic vocal skills to predict a reasonable degree of success. For instrumental programs, students are asked to provide their own instruments when school-owned instruments are not available.

There is a universal need for replacement of equipment as it wears out, is vandalized, or is stolen. The insufficient funding for musical instrument replacement is alleviated to an extent by certain communities taking an active part through extensive fund-raising to help schools add to or replace equipment. These communities also help in providing uniforms which are not provided by the school system for bands, orchestras, and choruses.

At the elementary level, music teachers sometimes do not have a permanent or appropriate location in which to teach music. Also, the facilities at all levels do not always have the appropriate acoustical features important to the music program. This applies to sound within the instructional area, as well as from other instructional programs.

Staffing at the elementary level for 1985-86 included 63 general and vocal positions, 10.4 string positions, and 19.4 band positions. Vocal teachers usually work in no more than two schools while string teachers work in four to six schools and band teachers work in three to five schools. Most of the elementary music teachers must prepare for and teach up to nine different instructional groups (grade levels, exceptional children, ensembles, instrument families, ability levels). The number of classes taught per day ranges between seven and nine.

Staffing at the secondary level for 1985-86 included 32.6 vocal positions and 28.7 instrumental positions. Secondary music teachers usually teach two to eight courses with up to five of them scheduled in a given day and requiring a wide range of preparations.

With regard to staff development, 13 different workshops have been conducted for music teachers by the school system since 1980. Four workshops were held in 1985-86.

RESEARCH

A review of the literature produced the following findings:

- Traditionally in the United States the arts have been taught as a separate discipline, subordinate to other school subjects. Current national studies have endorsed the concept that music and the arts are basic to learning.

- The impact of music on a person's life may be as great and significant as that of any other curriculum area.

- Early childhood is the most critical period for learning fundamental concepts and skills in music.

- Children who experience a musically stimulating environment in early life have greater capacity for learning and enjoying music than other children.

- Because of the music learning capacity of the young child, pre-school children and their parents may be the populations that can benefit most from music education.

- The largest part of musical perception belongs to the brain's right hemisphere with its holistic ability to integrate, almost instantly, complex and varied sensory input. The left hemisphere of the brain, primarily involved with analytical and logical thinking, cannot deal with simultaneous input except by alternating attention quickly.

- The holistic nature of musical perception, performance, and creation makes music an exceptional vehicle for developing higher level thinking skills.

- Music contributes to personal development, expression, creativity, and awareness, and to the cultural heritage of mankind.

- High levels of musical ability appear to be attained through parental encouragement and approval of the child's musical activities.

- Music can serve as a methodological tool in teaching children academic skills such as reading, language arts, and mathematics.

- Disciplines such as language arts, science, social studies, and mathematics are significantly enhanced when they include content from the arts.

- There are five major international approaches to music education: Kodaly, Orff, Gordon, Dalcroze, and Suzuki. These approaches have a long standing reputation and contain educational components which have proved highly successful.

- The Suzuki method is so effective that children as young as three years of age are taught to play intricate passages of difficult solo and symphonic compositions.

- A national study in 1984 by the National Association of Secondary School Principals of student participation in school-related activities lists band/orchestra as #2 and choir/choral groups as #3 out of 16 activities. (Athletic teams/clubs were #1.)

- While the importance of music in life was ranked very high (#2, only sports and fitness ranked above music) in the above mentioned study, perceptions of the importance of the study of arts in the schools are quite low.

- The amount of money spent on records and concerts makes music a major industry.

- Formal activities in music tend to decrease with age, whereas informal activities tend to increase with age, but at every age music has a significant place.

- Students need first and foremost a sense of responsibility, self-discipline, pride, teamwork, and enthusiasm as employable skills. Music instruction teaches these skills effectively.

- Educational leaders should make provisions for positive musical experiences as a part of the educational process.

- Immigrants in schools have implications for broader cultural diversity in music curriculum.

- Music appreciation is most effectively taught with accompanying opportunities for production on the part of the student.

- The development of skills carries over to lifetime activities.

- Music contributes to an understanding of the cultural heritage of mankind.

- Music contributes to the understanding and enhancement of self, to the fulfillment of potential and to self-expression and creativity.

- Stimulating or sedating music activities, properly used, not only alter the general spirit of children, but also can contribute to an improvement in the learning environment.

- The performing ability and music literacy of high school musicians have been improving during this century.

- In addition to the previous findings from literature and research, a national assessment of performance in, knowledge of, and attitudes toward music was conducted by the National Assessment of Educational Progress in 1979. This assessment showed that:

    - Most students have a positive attitude toward music.

    - Nine- and seventeen-year-olds' knowledge about music has declined since the early seventies, particularly in knowledge about the elements of music such as rhythm, pitch and tone, and musical notation.

    - Seventy-two percent of the 13-year-olds and 82% of the 17-year-olds had taken a class in general music or music appreciation.

    - About one third of the junior and senior high school students said they had participated in a vocal or instrumental music group for at least a year.

    - Nationally, 84% of the 9-year-olds said they were taught music in school during the 1978-79 school year.

RECOMMENDATION

Music, which has the capacity to exalt the human spirit and enhance the quality of life, plays a major role in society. The impact of the music curriculum on the lives of students is broad, pervasive, and lifelong. Because the school has the obligation to help each student develop his or her musical potential to the greatest extent, it is imperative that a music program provide opportunities for continuity of skill building and appreciation from elementary through senior high school.

It is recommended that:

A BALANCED, COMPREHENSIVE AND SEQUENTIAL MUSIC PROGRAM BE PROVIDED FOR ALL STUDENTS, PRE K-12

In order to implement the above recommendation, it is proposed that:

- Systemwide scheduling models and guidelines be developed and implemented so that each secondary student has the opportunity to elect courses in music each year without prerequisites and without conflicts with required courses
- Resources for music equipment, including those items used in auditoriums and public places, be allotted on an equitable basis and that instruments, equipment, and uniforms be replaced when they reach the end of their life cycles
- A text or method book and performance music be provided for each student enrolled in music activity
- A basic and essential library of recorded music and music reference books be provided in each school
- Facility construction and renovation be planned so that discrete space is provided for all instrumental, general, and choral music instruction as detailed in current facility specifications
- Alternate modes of scheduling elementary instrumental music be explored so that the integrity of the curriculum and instruction remains strong and the effects of "pullout" scheduling is minimized
- Choral and instrumental prescriptive curriculum documents with evaluation components be developed for all courses
- Extracurricular activities be provided for all music options
- Systemwide scheduling models be implemented so that all students in grades 6, 7, and 8 receive music instruction which builds upon elementary school experiences
- Staffing be on a program or total department enrollment basis so that both a choral and instrumental person are assigned to each secondary school and so that small, but important, music classes may still be scheduled and perhaps compensated for by large ensembles in the schedule
- Curriculum be developed for advanced placement courses in music
- Appropriate music instruction by qualified music teachers be provided for kindergarten and pre-kindergarten classes
- Teaching and learning strategies be introduced for major international methodologies such as Suzuki, Orff, Kodaly, Gordon, and Dalcroze
- Technology be introduced in the music classroom so that students will experience the influence of electronics on musical expression

- Staff development be provided for all teachers so that they are properly prepared for music teaching
- Specific strategies for articulation and cooperation between the high schools and their feeder schools be implemented so that students are fully aware of music options
- Assistance be provided to run countywide music programs and activities
- The countywide Henry Rosso Library, a circulating central office library of instrumental and choral music, be cataloged and systematized
- String instruction be made available to all students, K-12
- A plan be developed and implemented to ensure that there are adequate facilities, equipment, and supplies to meet program needs

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Quality of life will be enhanced.
- Cultural heritage as expressed through music will be passed to succeeding generations.
- Greater personal potential, creativity and self-expression will be realized.
- Students will better understand the nature of mankind including relationships with other human beings and with the environment.
- Students will have a knowledge of the symbol system represented by music.
- Students will have opportunities for choral, string, band, and other music instruction each year during the instructional day, without prerequisites and without conflict with required courses.
- Students will have continuity in the sequence of music objectives, content and skills.
- School facilities, equipment and supplies will reflect program needs.
- Teachers will provide outstanding music instruction.

PROGRAM AREA: OPERATIONS

PRESENT STATUS

It is the function of the Operation of Plant Division to operate all public school facilities in a manner conducive to the health, safety, and welfare of the occupants. This includes the administration and development of energy management programs for the total school system. Specific activities include:

- Provision of general housekeeping and custodial services
- Operation of lighting, heating, air conditioning and ventilation systems
- Overseeing of water, sewage, trash disposal, and communications
- Ongoing evaluation of school plans for efficiency and economy of operation
- Overseeing the energy management program

The Operations Division is responsible for hiring and training custodial staff and for purchasing and supplying the materials necessary to maintain high standards of cleanliness in school facilities. Training classes are held each month to instruct new employees. The custodial staff is directly supervised by either the chief custodian and/or plant and equipment operators. Chief custodians and plant and equipment operators are trained on the safe and efficient operation of the heating, ventilation and air conditioning systems in the schools. Certificates are issued to employees who attend and complete the programs for Operation of Plant Low Pressure Boiler and Advanced Low Pressure Boiler courses.

Improved methods of cleaning the schools and the use of new and more efficient materials and custodial supplies are concerns constantly addressed by the Operations Division.

Formal inspection of each school is conducted at least once per year. Follow-up is made on correcting any noted deficiencies. In addition to regular inspections, corrective action is taken on any items dealing with the health and welfare of the occupants of the schools on an ongoing basis.

Personnel activities associated with work schedules, discipline, interviews, uniforms, and other various duties associated with maintaining a large staff of custodians and plant and equipment operators are handled through the Operations Division. The annual turnover rate for the custodial staff is about 15%.

The following table depicts the size of the Operations Division staff.

OPERATIONS STAFF

Supervisor of Operations	1
Assistant Supervisor	1
Area Foremen	4
Assistant Area Foremen	4
Energy Management Specialist	1
Office Staff	11.5
Secretaries, clerks, warehouseman, roving custodians	
Custodial Staff (custodians and plant operators)	688
TOTAL	710.5

The Operations Division continues to develop better methods to increase the efficiency of employees. Each contracted service is evaluated continuously to determine cost effectiveness. Efforts to control costs and improve services are aimed at areas such as telephone service, gas and electric, water and sewage, and heating oil.

RESEARCH

A review of the literature produced the following findings:

- There will be an increase in instructional, day care, and community recreational use of school buildings in the future. As a result custodial services and energy use will be increased.

- School systems should make sure that existing and newly purchased equipment is energy efficient.

- School systems should develop and implement efficient energy management systems.

- Responsibilities will greatly increase in those areas associated with large groups of children and adults exposed to environmental elements associated with the standard health, welfare, and safety of occupants of school buildings.

- Operations employees will face the need to keep current with technological changes in the following fields: computers and communications, energy management, chemicals and cleaning solutions, operation of boiler rooms, human and personnel relations, manpower and work measurement, and staff and employee training.

RECOMMENDATION

The basic objective of the Operations Division is to operate the school facilities efficiently with respect to heat, light, and power, and to clean and maintain each school so that all occupants can have the best study and work environment possible. Maintaining excellent health, welfare, and safety standards in all school facilities requires a well-trained plant operations staff.

It is recommended that:

> **THE OPERATIONS DIVISION USE EFFECTIVE AND EFFICIENT MANAGEMENT PRACTICES THAT PROVIDE QUALITY WORK AND LEARNING ENVIRONMENTS**

In order to implement the above recommendation, it is proposed that:

- Flexible work schedules be implemented to meet changing and increased building usage

- A program be developed and implemented to ensure the proper cleaning tools, supplies, and disposal of all wastes associated with health rooms and health cleanup services

- In-house training programs be implemented which deal with the operation of low pressure boilers and air conditioning systems, custodial training programs, and supervisor training programs.

- Special consideration be given to training Operations Division employees in dealing with chemical and hazardous materials and with the possible presence of communicable diseases

- The energy management system be modernized by installing computer control for all basic equipment to regulate the heat, light, ventilation and air conditioning at all school facilities

- Training be provided to operate the computerized energy management system and to schedule the required preventive maintenance program necessary to maintain the systems

- Manpower requirements be computerized so that the required number of custodians and plant operators is determined and work schedules developed for the maximizing of the work force in cleaning and maintaining the schools

- Control and management of all custodial supplies and equipment be computerized

- A computerized data bank be developed and implemented which contains information necessary to control and manage budget items related to utilities, trash collection, manpower, and outside contracts

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students, teachers, parents, and the general public will be able to utilize the school buildings with the assurance that high health, welfare, and safety standards are being met.

- The most efficient and effective management practices will be implemented.

PROGRAM AREA: OUTDOOR EDUCATION

PRESENT STATUS

Outdoor Education is provided to teach those areas of the curriculum which can best be taught outdoors, and to enhance other subjects through first hand experience in natural settings. The programs included in the curriculum at Arlington Echo and West River Outdoor Education sites are designed to extend the general education program. The goals of the program are:

- To use the outdoors as a logical extension of the regular classroom

- To provide opportunities for interdisciplinary activities

- To help each student acquire knowledge useful in developing environmental attitudes that can be applied to daily experiences

- To develop individual skills and interests in outdoor experiences and leisure time activities which will be lifelong

- To develop psychomotor, sensory, and social skills in an outdoor situation

Preschool, elementary, secondary, and special school students are served through a variety of activities offered during a regular day (9 a.m. to 1 p.m.), an extended day (9 a.m. to 4 p.m.), and residential programs. Residential programs are experiences lasting two days and one night, three days and two nights, or four days and three nights. In preparation for these programs, teachers choose activities which relate to their curriculum. The curriculum is based on the belief that combining outdoor experiences with the classroom curriculum increases the motivation of the student and that learning is most effective when classroom readiness and follow-up activities are combined with an outdoor experience.

The center is used by students for leadership training, by athletic teams for group awareness, and by faculties for professional staff development. During the summer one week residential camps specializing in foreign language, music, science, art, and teen parenting are open to students who qualify according to criteria set up by each program area. During this past summer, 696 students participated in these camps. Programs for highly able students are offered on weekends in drama, art, Spanish, French, and German.

Facilities are available at the Arlington Echo site year-round, and at the West River site during the spring and fall. Presently there is an increasing demand from the schools for inclusion in the outdoor education program. The number of total students and total school groups participating in outdoor education experiences has increased significantly in the last five years. These factors, coupled with the recent trend of increasing the length of the experience, have resulted in an over extension of the program. Currently there is a concern about the possible overuse of the facilities. Also of concern is the fact that the existing staff cannot provide sufficient services to meet the ever increasing demand for outdoor education experiences. For example, grades 2, 3, 4, and 6 cannot be accommodated for day trips.

During the 1985-86 school year, all schools had some grade or program area involved in the Outdoor Education Program. Participation included a total of 15,364 students, of which 12,940 were elementary students, 1,517 were middle/junior high students, and 907 were high school students. There were 681 classroom teachers and 3,010 parent volunteers involved on 349 different trips. Five hundred forty-six (546) days of programming were scheduled during the calendar year.

The facilities, although not sufficient for the current demand, are quite extensive. Arlington Echo is a 24-acre site in Millersville located on the banks of the Severn River. The land is mostly wooded with nature trails, cabins, a kitchen and dining hall, an instructional swimming pool, a resource laboratory and an extensive waterfront area. The six modern cabins which can accommodate 140 people were recently renovated, and the kitchen and dining hall are presently undergoing renovation.

The Resource Lab houses equipment needed for student trips, and also lends equipment, books, and other instructional materials to teachers for use in readiness or follow-up activities, or for other activities in the classroom or on school grounds. The equipment which is available includes microscopes, bee colonies, mounted animals and animal skeletons, specialized measuring tools, water and soil test kits, aquaria, and forestry and weather study displays and instruments. There are also many books, films, posters, magazines, and other materials in the Media Center within the Resource Lab.

The waterfront location allows marine studies aboard the research vessel "Lady Echo" or from the shoreline, beach, marsh, or pier. It also provides opportunities for boating experiences with a focus on the need for water safety education. Outdoor Education also includes a drownproofing program which is taught in two camp pools and seven community pools. The research vessel is used by middle, junior, and senior high school students to collect data from the Severn River. The students analyze the data which will help generate and clarify seasonal and annual trends. The data is then summarized and sent to the Maryland Department of Natural Resources and the Anne Arundel County Department of Planning and Zoning.

The facilities of the West River site differ somewhat from those of Arlington Echo and, although somewhat limited, still provide for quality programming. Arlington Echo is owned by the school system. The West River Camp is leased from year to year on a per person basis and is available only during the week. The site accommodates 120-130 people at one time. The programs offered, however, are comparable in variety and quality with those at Arlington Echo. The borrowing of books, equipment, and other materials by teachers for use in the classroom is not dependent on the site used for the trip.

The Outdoor Education Program is under the direction of a Coordinator of Outdoor Education. Additionally, there are two outdoor education teacher specialists and part time staff who assist teachers in planning and executing their programs. The staff also offers workshops for teachers interested in pursuing various areas of outdoor education.

Currently 23 Maryland State Department of Education credits in Outdoor Education are offered through the Office of Staff Development. Each semester three different courses are taught. These courses are a mixture of content and techniques for working with children in the out-of-doors. Each year approximately 100 teachers are enrolled in these courses. Guide books of activities are developed by writing teams each summer to assist classroom teachers in preparing and executing their lessons. Twenty-four different guide books on topics such as honey bees, orienteering, and water safety, along with the kindergarten activity book, have been developed and used by teachers.

Perhaps the underlying success of the Outdoor Education Program lies in the involvement of parent volunteers. As teachers plan each trip, they include parents in volunteer positions as activity leaders and/or chaperones. The parents then receive detailed guidance from the outdoor education staff during a parent inservice.

RESEARCH

A review of the literature produced the following findings:

- Environmental quality is an increasing public concern, and the development of an environmental ethic for students is increasing in importance. Schools should include outdoor experiences as part of their basic curricula to address this concern.

- The use of outdoor education activities which are correlated with classroom curriculum ensures greater learning success.

- Outdoor education is most effective when teacher inservice training, classroom readiness activities, the outdoor experience, and classroom follow-up activities are planned in coordination with each other.

- Early experiences (pre-school through elementary) have a greater impact on positive attitudes toward the environment and toward other people than later experiences. A significant number of environmental attitudes are formed in the elementary school years. Kindergarten children form concepts and opinions concerning environmental issues and citizenship responsibilities.

- The longer the length of the outdoor experience, the greater the impact on the development of an environmental ethic and the greater the chance for an attitudinal change.

- Teacher training (inservice, workshops) produces desired effects on teacher attitudes, knowledge, and behavior with regard to environmental education; this training has a positive impact on students.

- Outdoor education provides a greater opportunity than the classroom for social skills development. Democracy, community living, group interaction, and individual growth activities have a greater frequency of occurrence in an outdoor residential program than in a classroom. Human relations may be improved, and more effective methods of conflict resolution and group decision-making may be developed.

- There is a need for development of an environmental ethic for urban and suburban students which is applicable to their environment.

- When students interact with the natural environment, meaningful concepts are built, observational skills are sharpened, and a greater awareness and appreciation for the natural environment may develop.

- Outdoor education is valuable for forming positive attitudes about the enrivonment.

- The out-of-classroom setting increases the motivation to learn.

- The experiential learning opportunities provided by outdoor education expand the teaching-learning process beyond the classroom.

- Some states have mandatory environmental education or outdoor education training for teachers. Maryland is not included in the states with mandates.

RECOMMENDATION

As the nature of the county becomes more suburban and metropolitan, the need for outdoor experiences increases. It is critical that all citizens be aware of the impact that their actions have on the environment.

It is recommended that:

> **THE OUTDOOR EDUCATION PROGRAM BE CONTINUED AND EXPANDED TO ENSURE THAT ALL STUDENTS HAVE A MINIMUM OF ONE OVERNIGHT EXPERIENCE AND TWO DAY TRIPS SOMETIME DURING THEIR K-5 EDUCATION AND THAT SPECIAL PROGRAMS AND CAMPS CONTINUE TO BE OFFERED TO STUDENTS**

In order to implement the above recommendation, it is proposed that:

- The outdoor education programs be expanded with appropriate sites and staff

- Specific outdoor education curricula be developed to include Pre-K through grade 6. Outdoor education be coordinated with the high school marine biology and ecology courses

- Adult education workshops and additional inservice training for parents and community groups be provided

- A mobile outdoor education lab be provided. This would allow such possibilities as school grounds and county and state parks to be used for outdoor education activities and would greatly expand the possibilities for readiness and follow-up activities.

- Staff development be provided for administrators and teachers which is aimed at specific student age levels and at specific student populations

- Videotapes for inservice training be available to parents who are unable to attend the parent inservice prior to student trips

- New teachers be provided an orientation to the outdoor education programs

- Staff development be provided for continuing education of the outdoor education staff. This can be accomplished by allowing the staff to attend workshops and conferences and to visit other outdoor education facilities.

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Every elementary student will have a residential outdoor education experience.

- Teachers, students, and parents will be literate concerning environmental needs within their society.

- Students will have an understanding of the value of a quality environment.

- Students will take an active role on environmental issues.

- Teacher competencies will be enhanced in the areas of content and teaching techniques in working with students in the out-of-doors.

PROGRAM AREA: PERSONNEL
CONSIDERATION: TEACHING STAFF

PRESENT STATUS

There are 3,756 teachers in the system. Females outnumber males by a ratio of almost 3 to 1 (2,791 females, 965 males). Ethnic and racial minority teachers number 571 with 14.2% black, 84.8% white and 1.0% other. The average age is 39.9 years with 26.7% of the teachers in the 36-40 year age category. The average number of years of prior experience in this school system is 11.3 years. Media specialists are the oldest with an average age of 45.1 years and special education teachers are the youngest with an average age of 35.1 years. Driver education teachers have the greatest average number of years of experience (16.8) while special education and vocational teachers have the least average number of years of experience with 6.8 years. The following table depicts the number of teachers in each teaching category along with the average age and average length of prior service in each category.

Number of Teachers, Average Age, and Average
Number of Years of Prior Service by Teaching Category
Fall, 1986

	No. of Teachers	Average Age*	No. of Yrs. Prior Exp. ** In A. A. Co.
Media Specialists	95	45.1	12.2
Business Education	84	44.6	16.1
Vocational	38	44.2	6.8
Driver Education	13	42.9	16.8
Music	163	41.7	13.5
Reading	81	41.7	13.0
Home Economics	64	41.5	12.7
Kindergarten	118	41.4	9.9
Social Studies	258	41.3	13.4
Elementary Education	1,003	41.1	11.8
Art	133	40.4	11.8
All Teachers in this Report	**3,756**	**39.9**	**11.3**
English	279	39.7	11.4
Distributive Education	14	39.5	9.3
Physical Education	201	39.3	13.9
Gifted and Talented Programs	11	39.3	15.0
Mathematics	253	39.1	10.6
ESOL	10	39.0	6.3
Science	235	39.0	11.8
Industrial Arts	76	38.1	12.9
Foreign Language	99	37.4	8.7
Speech Therapy	86	35.2	7.3
Special Education	442	35.1	6.8

*As of 1986 birthday
**As of 6/30/86

RESEARCH

A review of the literature produced the following findings:

- Two major national education reports published in 1986 were A Nation Prepared: Teachers for the 21st Century, The Report of the Carnegie Forum Task Force on Teaching as a Profession, and Time for Results, the Governors' 1991 Report on Education. These comprehensive reports contained numerous education findings and recommendations. Included in the recommendations regarding the teaching profession were the following:

  - the creation of a partnership of government, the private sector, the minority community, and the schools to ensure an increasing number of minority teachers

  - the abandonment of continuing education credits as a basis of salary determination. Teacher compensation should be based on the following:

    - job function - level of responsibility
    - competence - as determined by level of Board certification
    - seniority - experience in the classroom
    - productivity - contribution to improved student performance
  - the development and implementation of a fair, affordable career ladder salary system that recognizes differences in function, competence, and performance of teachers
  - the creation of a national board of professional teacher standards
  - the willingness to end emergency teaching licenses
  - the recognition of outstanding teaching

- The Holmes Report from the Holmes Group, which is comprised of Deans of Colleges of Education at research universities throughout the United States, attempts to address the problem of low quality of teacher preparation in the United States. The major goals of this group include the following:
  - to make the education of teachers intellectually more solid
  - to recognize differences in teachers' knowledge, skill, and commitment in their education, certification and work
  - to create standards of entry to the profession -- examinations and educational requirements -- that are professionally relevant and intellectually defensible
  - to connect the member institutions to schools
  - to make schools better places for teachers to work and to learn

- The Maryland State Department of Education's Teacher Supply and Demand in Maryland (1986-1989) released in August of 1986 reports the following:
  - The state will need 3,299 new teachers for the 1986-87 academic year.
  - About 79% of the above positions will be filled by graduates of teacher education programs in Maryland and other states, experienced teachers who live in Maryland but who have not been teaching, and experienced teachers from other states. The remaining will have to come from non-traditional sources.
  - The most critical areas of shortage through 1988-89 will be in special education and mathematics.
  - Trades and Industries, Business Education, and Industrial Arts will experience shortages in the next few years.
  - If English continues to be taught by misassigned teachers, recruitment of certified English teachers should be a priority.

  - Although the pool of candidates for elementary positions appears to be adequate, it is also thought to be an unreliable pool upon which to base staffing projections because a disproportionately large share of young women leave jobs to get married, have children, and leave the area with their spouses.

- Because of increased career opportunities in other fields, fewer women are going into teacher education.

- There is a national trend toward increased enrollments of racial and ethnic minorities with a corresponding decrease in the number of ethnic and racial minority applicants for teaching positions.

- Teachers' salaries have not kept pace with other sectors of the workplace.

RECOMMENDATIONS

An excellent educational system requires excellent teachers. Increasing the competence of the teaching staff will result in a greater increase in students' learning than will changing any other single factor under the control of the school system. At a time when the demand for teachers is beginning to exceed the supply, especially in certain areas such as special education and mathematics, it is imperative that the school system expend whatever effort is necessary in order to attract and retain the highest quality teachers possible. In addition the teachers hired should reflect the ethnic and racial makeup of the school system.

It is recommended that:

> **TEACHER RECRUITMENT AND RETENTION EFFORTS BE EXPANDED IN ORDER TO STAFF THE SYSTEM WITH THE BEST AND MOST QUALIFIED PERSONNEL AVAILABLE**

In order to implement the above recommendation, it is proposed that:

- Salaries be increased so that they are competitive with other school systems and with comparable occupations

- A stronger relationship between the community college and the school system be established so that top liberal arts students are encouraged to volunteer in the schools and, hopefully, then be attracted to a teaching career

- Teachers be recruited from business and industry by the school system

- Programs such as Future Teachers of America be reinstituted in the high schools

- Promising future teacher candidates be identified while still in high school and given the necessary financial incentives and moral support to pursue teaching careers

- Personnel be hired from business/industry and institutions of higher education for part time positions

- Misassignment of teachers be eliminated

- Teaching assignments be split between schools rather than misassign teachers to out of field positions

- Salaries be based upon a meritocracy coupled with career ladders
- Priority be given to the recruitment of males and to racial and ethnic minorities so that role models for each sex and for racial and ethnic minority groups are evident in each school
- The concept of laboratory schools for the system be developed and implemented by designating typical schools in the county as places to:
  - put research findings into practice and explore new ideas
  - work with colleges and universities
  - develop leadership
  - conduct visitations
- Guidelines be developed and implemented whereby education expenses for planned advanced education for teachers would be paid by the school system
- Teachers be permitted, encouraged, and financially supported to attend state and national professional meetings, conferences, and workshops
- Teachers be recognized for student achievement related successes
- Teachers be given additional opportunities within their own schools to develop leadership (e.g., committee chairs, research teams, demonstration teaching to peers)
- Non-teaching duties be minimized
- Retired teachers be hired on a part time basis
- Screening devices for hiring personnel be strengthened
- Flexible benefit packages including child care be available
- Teachers be encouraged and financially supported to conduct classroom research
- A plan be developed and implemented whereby relevant research findings can be disseminated and implemented in classrooms
- Efforts be made to attract experienced teachers by increasing the number of years credit given on the salary scale for experience in other school systems

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Teacher applicants will be better prepared and more highly qualified to teach.
- The system will attract and retain highly qualified teachers.
- More young people will choose teaching as a career.

- There will be a greater percentage of minority teachers.
- There will be a greater percentage of male teachers.
- More frequent and meaningful classroom research will be conducted.
- Research findings will be more readily implemented in individual classrooms.
- Students will receive a quality education.

CONSIDERATION: STAFF DEVELOPMENT

PRESENT STATUS

The employees of an organization must continue to grow if the organization is to remain capable of meeting the challenging needs of those it serves. The school system is no exception. The Office of Staff Development is responsible for providing the preservice and inservice programs to train and/or upgrade the skills of the over 6,000 employees. Efforts of the Office of Staff Development have an indirect, as well as direct, impact upon improving the quality of services delivered to youngsters attending the public school system.

Staffing and Budget

The Office of Staff Development operates with one coordinator, three resource teachers and one secretary. The general responsibility of the coordinator, with the assistance of the resource teachers, is to plan, develop, implement, and evaluate the training programs for all employees of the school system. Two resource teachers work primarily with instructional staff and one works primarily with support staff.

During 1978-1979, the Office of Staff Development coordinated the training for only the professional staff. However, since 1980-1981, the responsibility for coordinating training programs has expanded to include the total employee population of the system. Of the $236 million operating budget for 1986-87, only $254,800 was appropriated to the Office of Staff Development.

The staff development budget is utilized in several ways. The Office of Staff Development is allotted a sum to provide inservice activities through countywide workshops, school based workshops, and departmental workshops. The office also coordinates the teaching of college credit courses by area colleges and universities. These courses are taught at various locations throughout the county for the staff. Graduate credit is given for certain county sponsored workshops. The Staff Development Office arranges and coordinates this effort. Funds for both of the above are provided by the Personnel Office. Program coordinators and school directors are also allotted funds to meet specific program and school needs, and individual schools are given money to provide specific school-based inservice programs.

Workshops and Certification

There are approximately 4000 teachers in the school system. All teachers are required to have the Advanced Professional Certificate (APC) within ten years from the issuance of their Standard Professional Certificate (SPC). This may be accomplished by receiving a master's degree or a master's equivalency. The master's equivalency may be a combination of college courses and workshops totaling 30 credits. Workshop credits may not exceed 15 credits. Over 82 percent of the teachers have the APC and are not required to take additional courses. However, teachers continue to grow professionally by taking inservice courses.

The content of most workshops, seminars, and staff development conferences and programs is the responsibility of the program coordinators, with the Office of Staff Development handling logistics such as scheduling, notification, registration, location, and other coordinating activities.

- Workshops Offered for Credit

  Workshops offered for professional growth may carry one, two or three credits. Those credits are awarded by the Maryland State Department of Education (MSDE) and/or an institution of higher learning. As noted previously, fifteen such credits may be applied toward the issuance of a master's equivalency.

  Aides are also encouraged to participate in workshops. However, they receive credit recognized by the Board of Education rather than the MSDE. This credit is referred to as "Board Credit."

- Workshops Offered for Stipend

  There are workshops which are critical for successful program implementation (e.g., the implementation of new curriculum or the refining of existing curriculum). Also, organizational workshops are offered for staff and facility utilization. These are primarily limited to new schools and the reorganization of established schools. In order to encourage participation in these workshops, a stipend of $40.00 per five-hour day is offered.

- Workshop Instructors

  Workshops are generally conducted by personnel within the system. Qualifications for instructors include a master's degree or equivalency, tenure, and demonstrated proficiency in the area being taught. Instructors are paid at a rate of $375.00 per credit (15 contact class hours). The instructors for workshops not offered for credit are paid at a rate of $12.00 per hour. In addition to school system personnel, outside consultants are also used for inservice activities. They are budgeted at a rate of $200.00 per day. However, the individual amount paid to consultants may vary.

- Workshop for Support Employees

  After the supervisors of various support services divisions identify areas of need for specific groups of employees, the Office of Staff Development collaborates to design a program for meeting the needs of the group. The Office of Staff Development either develops a program using instructors within the school system or identifies outside resources to accomplish the objective. A variety of inservice activities may be used such as demonstrations, lectures, discussions, and videotape presentations. Generally, these are conducted during the normal work hours and do not offer credit or a stipend.

- Maryland Professional Development Academy

  The Maryland Professional Development Academy conducts staff development activities for school administrators in the state of Maryland. Week-long summer institutes are offered on various topics designed to enhance skills in administration and supervision. School system staff have participated in these programs since they began in 1978. Through the Academy programs, many schools have received funds to implement programs developed during summer institutes.

Types of Training Offered

The Office of Staff Development coordinates the planning, development, implementation, and evaluation of training programs for the instructional and support employees of the school system. The program is concerned with both preservice and inservice training, the former received prior to assuming a given job within the school system, the latter received while holding a given job.

- Preservice Programs

  Teacher Education Centers have been created in 14 county schools. Through a cooperative effort with local institutions of higher learning, prospective teachers observe classes and assist the classroom teachers and students.

  The Office of Staff Development has developed an orientation program for custodians and clerical employees. The custodial orientation program is taught monthly by chief custodians and a resource teacher from the Office of Staff Development. The orientation program for clerical staff is offered on a bimonthly basis.

- Inservice Programs

  The programs offered by the Office of Staff Development serve a wide range of personnel: administrators, teachers, secretaries, custodians, and support personnel at all levels. In program areas, the content for the workshop is the responsibility of the individual program coordinators. However, the coordinator of staff development works cooperatively with program coordinators to organize the workshop content into a format which will meet the approval of MSDE and/or institutions of higher learning. The Office of Staff Development is responsible for submitting workshop proposals and gaining approval for them. Other workshops, seminars, and programs are developed collaboratively with the various departments within the school system.

  Occasionally, specific need areas are identified which require the development of programs to retrain employees of the system. For example, to address the shortage of certified teachers in the area of mathematics, the Office of Staff Development in collaboration with the University of Maryland provided an opportunity for teachers in the system to meet state certification requirements. Also, they had the option of meeting the requirements of a master's degree program in mathematics education. The courses were offered in the county exclusively for county teachers.

  Two cycles of the Mathematics Certification Program were offered. Cycle one concluded in the summer of 1984 with 31 teachers being certified in mathematics. Six of the 31 teachers graduated from the University of Maryland with a Masters of Mathematics Education degree. The personnel office has placed 14 of the certified teachers in mathematics positions in the middle and junior high school levels. One teacher has been assigned to the mathematics support resource team.

Cycle II of the Mathematics Certification Program, in which 15 teachers participated, concluded in the summer of 1986. Nine of these teachers have been placed in mathematics positions in middle/junior schools and one teacher has been assigned to the mathematics support resource team.

A mathematics upgrade program was offered concurrently with the certification program. Teachers who were certified in mathematics were given the opportunity to take math courses that would serve to refresh their skills or to upgrade their skills. Approximately 60 teachers participated in the 18-credit program. Also, two courses in Pascal Computer language were offered to teachers certified in mathematics. At least one teacher from each high school participated.

The coordinators of science and staff development collaborated with the science departments at the University of Maryland to address the teacher shortage in science. A certification program and upgrade program have been developed and are in various stages of implementation.

The county has more than enough teachers who are certified in biology, but not enough in physics, chemistry, or earth science. Therefore, a program was developed to encourage those biology teachers with some credits in other science areas to take additional courses and become certificated in a relatively short amount of time. In addition, because the certification of many biology teachers was obtained 15 or 20 years ago and is now technically if not legally out of date, these teachers are being offered the opportunity to refresh or upgrade their skills.

- Administrators

  Workshops and seminars held for school based administrators are referred to as leadership seminars. Leadership seminars have been offered in Stress Management, Computer Literacy, Effective Writing for Administrators, Problem Analysis, School Law, Supervising the Instructional Program, Assessing Teaching Effectiveness, and the LIFO Training communication process. Additionally, administrators continue to take advantage of the Maryland Professional Development Academy Offerings. Nineteen administrators participated in the summer of 1986.

- Teachers

  Professional improvement workshops for teachers are held throughout the school year and during the summer. Most workshops offer either college/university credit or MSDE credit. A few workshops offer teachers $40.00 per day stipend to attend. More than 300 workshops have been approved for MSDE credit. These workshops are advertised through the Professional Improvement Workshops brochure which is printed three times a year.

  During the fall of 1982, an assessment instrument was used to survey teachers to ascertain staff development needs. The response to the survey was very encouraging. Seventy-five percent of the total teaching population participated in the survey. The three areas of highest priority among teachers were discipline, stress management, and planning gifted/talented programs. The goals of the Office of Staff Development have included the development and implementation of programs based on the results of the survey.

- Aides

Instructional aides are encouraged to participate in the professional improvement workshops. Workshops open to aides are noted in the brochure.

During the spring of 1980, a survey was taken of aides to determine the kinds of training programs they preferred. The information gained from that survey resulted in the offering of the following three programs: the Instructional Aide Certificate Program, the Portfolio Program, and the CLEP Program which gives credit through examinations.

- Bus Drivers

The Office of Staff Development has offered several training programs for bus drivers. The programs have centered around communication, both written and verbal, and human relations topics. Five hundred fifty (550) bus drivers participated in each offering.

- Business Managers

The Office of Staff Development coordinates inservice activities which address the needs and interests of the business managers. Because of the wide range of responsibilities and duties of the business managers, topics for staff development have included management and supervisory skills, job related technical skills, and skill development in the area of interpersonal communications.

- Custodians

The Office of Staff Development in conjunction with the Operations Department has developed and implemented two training programs for custodians. The Orientation Training Program is a two-day (16 hour) course, and is a requirement for all new custodians. It is taught at the Staff Development Training Center in Annapolis Junior High School in an instructional room equipped for hands-on learning, using the actual supplies and equipment that custodians use on the job. After developing the Instructor's Handbook and teaching materials, lead custodians, chief custodians, and area foremen were trained to use these materials as instructors.

- Secretaries, Clerks, Technicians

The Office of Staff Development offers inservice activities for the Secretarial, Clerical, and Technical Employees (SCATE). Inservice programs are designed to meet the needs of both the newly hired clerical employee and the veteran clerical employee. An assessment to ascertain the staff development needs as perceived by the secretarial, clerical, and technical employees was conducted by the Office of Staff Development during September 1984. Inservice programs were then developed around the results of the survey, as well as around the needs indicated by the supervisory staff. Examples of the programs include word processing, diction skills, human relations skills, and orientation to new positions.

Training Incentives

Roughly 10% of the teaching staff, or approximately 400 persons, enroll in workshops each term. The incentive for teachers to continue taking workshops diminishes, however, after the Advanced Professional Certificate has been obtained. Approximately 82% of the present teaching staff and all of the administrators currently hold an APC and are, therefore, not required to take additional course work for certificate renewal. Credit workshops are frequently cancelled because of insufficient enrollment. In addition to the credit workshops, certain content-related workshops which are critical for successful program implementation are offered by program coordinators and schools for a stipend of $40.00 per day.

Needs Assessment and Follow-up

Limited systematic methods exist for gaining input from teachers about their needs and desires for inservice. In most cases, teachers are asked to evaluate the workshops they have just completed, but formal follow-up evaluations to determine whether the various objectives have been implemented in the classroom rarely occur.

The Problem of Time

In addition to county workshops and college courses, staff development is provided for teachers through school based activities as noted earlier. The extent of these activities varies, however, and appears dependent upon the principal's attitude toward inservice. Department chairpersons may influence the staff development that occurs at the secondary level. Where possible, central office staff assist with school-based inservice if requested to do so by the principal.

Time for participation in these activities is frequently a problem. Teachers are contracted to work 189 days per year, with 180 spent on activities directly involving students in the classroom. The remaining days are scheduled for various activities: beginning and ending school year activities, parent/teacher conferences at the elementary and middle schools, and scheduling and/or inservice at the secondary level. Of the nine days, program coordinators are allotted one-half day to work with secondary teachers and teachers of special subjects at the elementary level. School-based inservice is provided for staff who do not attend the meetings with program coordinators. Also, two days each year are designated for professional work days to be planned at the local school level.

In addition, on parent conference days at the elementary and middle school level, staff development for special subject teachers is provided by program coordinators. Department chairpersons, during the course of the year, generally spend one or two days working with program coordinators.

Occasionally, staff development programs or activities concerning specific topics are offered for teachers who are given released time through the use of substitutes. Most of this type of inservice is funded through federal projects such as Chapter 1. Because of the concern about students being taught too frequently by substitute teachers, the difficulty in securing substitute teachers, and the budgetary impact of the number of days allocated, these activities have been restricted.

Staff Develpment Training Center

The Office of Staff Development has begun the development of a training center which is located in the south wing, second floor, of Annapolis Junior High School. Presently, only four rooms are specifically used for the Office of Staff Development Programs. Six other rooms in the wing accommodate resource teachers' offices and program training space for gifted/talented, language arts, mathematics, science, and social studies programs. Although the training center was not included in the budget for 1985-86, various departments shared resources to renovate the training center and to provide equipment to accommodate program and adult needs. All needs, however, have not been met. This is due mainly to budgetary restraints. The training center is used for both instructional and support employee inservice programs. Having a single location for many programs has greatly assisted in the delivery of the programs.

RESEARCH

A review of the literature produced the following findings:

- An increasing number of teachers are acquiring advanced degrees and full certification at an earlier age, meaning that no further education is required of them at a point relatively early in their careers. This, in turn, reduces motivation to take inservice training workshops.

- Gains in student achievement are directly related to the recency of their teacher's last educational experience. Student achievement rises when the teacher continues to learn.

- Successful inservice programs require a strong commitment from the principal.

- Because teachers' abilities and needs are not the same, staff development must provide differentiated training experiences. There has been too much emphasis in the past on teachers' deficiencies, while overlooking their strengths, interests, and desires.

- Teachers want relevant inservice programs that relate theory and application in a practical way. Teachers resent and reject staff inservice activities developed without their input. Transfer of learning to the classroom is more likely to occur when the objectives of inservice programs coincide with immediate teaching needs.

- Inservice programs which place the teacher in an active, rather than a passive, role and which provide opportunities for practicing newly learned techniques are more likely to accomplish their objectives.

- One-day inservice programs have proven to be least effective or successful, largely because they generally lack sufficient intensity and duration to create an impact or to provide for carry-over into the classroom.

- Conducting inservice programs after regular school hours is often unproductive because this is when teachers are usually at their lowest energy level and when they reflect the least tolerance toward accepting new ideas. Removing the teacher from the class when it is in session and replacing that teacher with a substitute is not seen as desirable because the presence of the regular teacher is directly responsible for higher student achievement. For these reasons, every effort should be made to hold inservice activities on days when classes are not in session.

- Staff improvement programs must offer incentives to encourage maximum participation by teachers. Offering small stipends has not proved to be a very effective motivator.
- Evaluation and follow-up of inservice programs is essential to ensure that objectives are implemented in the classroom.

RECOMMENDATION

Although the Office of Staff Development has accomplished many goals during the past several years, there are still many unmet needs. The office has continually expanded its program in terms of numbers of people served and numbers and types of offerings. The size of the staff development office, however, has not kept pace with the increased demands for staff development for the more than 6,000 employees.

The Staff Development Training Center, while greatly assisting in the delivery of the staff development program, is not adequate to meet the needs of the school system.

It is recommended that:

> **COMPREHENSIVE STAFF DEVELOPMENT PROGRAMS BE PROVIDED FOR ALL EMPLOYEES**

In order to implement the above recommendation, it is proposed that:

- A centrally located staff development center be established that will meet the varied needs of the school system and take into consideration the needs of the participants
- Certain county schools be designated as model teaching schools, on the order of teaching hospitals, where beginning teachers could serve an internship before becoming fully certificated
- Staff development programs be provided to meet promotional and leadership needs
- Staff development training be provided for substitutes and permanent substitutes
- Staff development training be provided for all personnel who will be supervising other staff
- Recipients of staff training be involved in planning, conducting, and evaluating staff development programs
- Preservice training and orientation sessions be provided for all staff entering the employment of the school system
- Incentive systems be implemented for participants
- The number of non-teaching days devoted to staff development activities be increased

OUTCOMES

With the adoption of the this recommendation, the following outcomes are projected:

- The staff development training center will be a place where staff will want to come to be involved in professional growth activities.
- Staff who are transferred or promoted within the system will be better prepared to assume their duties.
- Staff entering the employment of the school system will be prepared to assume their duties.
- Staff will continue to grow in their present positions.
- Staff development programs will meet the developmental needs of the school system's personnel.
- The school system will be better managed.
- The services provided by the school system will be enhanced.

CONSIDERATION: INSTRUCTIONAL SUPPORT STAFF

PRESENT STATUS

During 1985-86 the school system employed 113 principals, 79 assistant principals, 38 administrative trainees and 38 instructional support staff members in the central office. Profiles of these are shown in the following chart.

	Principals	Assistant Principals	Adminis. Trainees	Cent. Off. Instr. Supp.
Average Age	46.9	44.8	39.0	45.7
Male/Female	71/42	59/20	15/13	24/14
Minority/White	22/91	12/67	4/24	6/32
Average years of service in Anne Arundel County	20.7	18.3	13.0	16.7
Number Holding Masters	83	61	17	16
Number Holding M+30	25	13	9	15
Number Holding Doctorate	5	5	2	7

All persons in administration hold an Advanced Professional Certificate.

There has been no formal training program for potential administrators in Anne Arundel County since 1972-73. In that year, 11 persons were identified and invited to participate in such a program, receiving a number of varied experiences at the school and central office levels. The following year they were given permanent assignments in schools.

Currently, first year administrative trainees meet once a month for inservice activities. All other learning experiences are acquired on-site at their permanent work assignments.

Inservice opportunities for present administrators have increased during the past few years in several ways. Forty-seven administrators (directors, principals, program coordinators) have received training as assessors in the Administrative Assessment Center program. Three inservice/information sharing meetings for all assistant principals and administrative trainees are held during each school year. An Administrative Exchange Program for administrative trainees (second year and beyond) and assistant principals gives these administrators a chance to spend four to six weeks in a different administrative setting. Administrators in all secondary schools are now participating in the Instructional Leadership Program (ILP). ILP is a program which is designed to improve instruction in the secondary schools thereby reducing incidents of student disruption. Throughout a three-year period, a team of administrators and department chairpersons meet periodically to establish and implement goals and objectives based on the school's concerns for improving instruction. Also, staff development workshops for administrators and prospective administrators have been added to the staff development offerings.

An analysis of the present staff shows that 122 administrative positions could conceivably be vacated for retirement reasons alone in the next ten years. Using 55 as the age of retirement, 18 secondary principals, 45 elementary principals and one special education principal could retire with full benefits during this period, as well as 28 secondary assistant principals, six elementary assistant principals, two special education assistant principals, one secondary trainee, two elementary trainees and 19 of the 38 central office instructional support members. Based on past figures annually 15% of those eligible to retire do so.

In addition to the large number of potential retirements from the central office staff over the next decade, the most critical area appears to be in the elementary school administrative category. There are only five elementary assistant principals and nine elementary trainees under the age of 45 in the school system to replace the potential 45 principal retirees. At the secondary level, the situation is somewhat better. Nevertheless, in the next 10 years it is anticipated that greater demands will be placed on administrators in instruction. There is no comprehensive staff development program, either inservice or preservice, to meet this need.

RESEARCH

A review of the literature produced the following findings:

- Adequate attention has not been given to the identification, selection and training of persons to assume leadership roles in planning, developing, implementing and evaluating instructional programs in elementary and secondary schools.

- Specifically, the findings indicate the principal is the most important individual in any school. The principal's leadership sets a tone in the school that affects the morale of students, staff and community. The principal is also the key individual in terms of student outcomes.

- Criteria for the selection of principals are inadequate. Preservice training programs are also inadequate and do not meet the needs of school leadership responsibilities in a changing social environment.

- Continuing professional development is critical to effective school programs, yet staff development programs are either non-existent or inadequate.

- Training programs must focus on the external as well as the internal needs and pressures of instructional leaders. These programs are most effective when participants are involved in planning them and when they are conducted on days when school is not in session.

- Support to the schools from the central office, delivered through a team approach, is vital to the effectiveness of any school system.

- Most principals do not advance to other jobs.

- There is a national trend toward more detailed and objective competency-based evaluation of administrators.

RECOMMENDATION

The school system is going to continue to need to fill vacancies in the ranks of the principalship in the next ten years, especially in the elementary schools and although the principal is the most important individual in any school, training and preparation for this leadership position are inadequate.

It is recommended that:

> **A COMPREHENSIVE PRESERVICE AND INSERVICE PROGRAM BE ESTABLISHED AND IMPLEMENTED FOR PERSONS CURRENTLY HOLDING, OR EXPECTING TO HOLD, ADMINISTRATIVE/SUPERVISORY EDUCATIONAL LEADERSHIP POSITIONS**

In order to implement the above recommendation, it is proposed that:

- Criteria presently being used to identify administrators be revised in order to better meet future demands that will be placed on these administrators and supervisors

- Candidates for administrative and supervisory positions be required to participate in the preservice program prior to assuming administrative responsibilities

- Persons currently holding administrative and supervisory positions be required to participate in approved inservice activities in order to ensure continuing professional development

- The process for selection of personnel for administrative and supervisory positions be designed to provide equal opportunities for outstanding applicants from outside the system and to encourage such applicants to compete for the positions

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Qualified personnel will be prepared to fill administrative and supervisory positions.
- Schools will be well run and conditions for learning will be maximized.
- Students will have a better opportunity to receive an excellent education.

PROGRAM AREA: PHYSICAL EDUCATION
CONSIDERATION: INTERSCHOLASTIC, INTRAMURAL, AND EXTENDED DAY ACTIVITIES

PRESENT STATUS

The interscholastic, intramural, and extended day activities programs provide opportunities for students to explore special interests, refine athletic talents, and extend the skills and objectives of the physical education program.

Interscholastic athletic programs are conducted in each junior and senior high school. In the high schools, students in grade nine are eligible to compete on junior varsity and varsity teams. Ninth grade students in junior high school compete only on the junior high level. Rules and eligibility for interscholastic sports are determined by local and state athletic commissions. Senior high school athletic eligibility is based on the criteria of the Maryland Public Secondary School Athletic Association (MPSSAA).

There are 10 varsity girls' sports and 6 junior varsity girls' sports. There are also 10 varsity boys' sports and 6 junior varsity boys' sports. Additionally, athletes participate coeducationally in golf and tennis. Junior high school sports include 4 girls' sports, 3 boys' sports, and 2 coed sports. The following charts indicate the variety of interscholastic sports available in county senior and junior high schools.

HIGH SCHOOL INTERSCHOLASTIC SPORTS

SPORT	BOYS VARSITY	BOYS JV	GIRLS VARSITY	GIRLS JV	COED
Football	X	X			
Soccer	X	X	X	X	
Field Hockey			X	X	
Cross Country	X		X		
Volleyball			X	X	
Golf					X
Wrestling	X	X			
Basketball	X	X	X	X	
Indoor Track	X		X		
Spring Track	X		X		
Tennis					X
Gymnastics	X		X		
Lacrosse	X	X	X	X	
Baseball	X	X			
Softball			X	X	
TOTAL	10	6	10	6	2

JUNIOR HIGH INTERSCHOLASTIC SPORTS

SPORT	BOYS	GIRLS	COED
Tennis			X
Soccer		X	
Softball		X	
Basketball	X	X	
Track	X	X	
Wrestling	X		
Volleyball		X	
TOTAL	3	4	2

NOTE: Programs are available based on the accessibility of coaches and on student participation.

The following chart indicates a comparison of student participation in the 1985-86 school year to the student participation in 1979-80 when the Ten-Year Plan was prepared. It is interesting to note that although the overall student enrollment has declined during this period, student participation in interscholastic athletic programs has increased.

COMPARISON OF PARTICIPATION IN INTERSCHOLASTIC SPORTS FOR 1979-80 AND 1985-86

	Senior High Boys	Senior High Girls	Total	Junior High Boys	Junior High Girls	Total	Combined Totals
1979-80	4,478	2,199	6,677	865	645	1,510	8,187
1985-86	4,878	2,775	7,653	732	556	1,288	8,941

Scheduling for interscholastic athletics is done by the athletic directors and the coordinator of physical education.

County funds provide transportation, officials, supplies and equipment, physical exams, physicians for football, and awards for all interscholastic sports. Either a doctor, trainer, or paramedic is in attendance at all football games and county tournaments and at other selected interscholastic sports contests. Certified athletic trainers visit each school on a weekly basis to provide medical assistance for athletes on a need basis at no cost to the school system. Athletic directors in each junior and senior high school are responsible for organizing, administering, and supervising the operation of the school athletic program.

Qualifications for coaching personnel are determined by the Maryland Public Secondary Schools Athletic Association (MPSSAA) and by county policy. Training in Care and Prevention of Athletic Injuries, Standard First Aid, and Cardiopulmonary Resuscitation are required and available through workshops offered by the school system and conducted on a regular basis.

The increasing lack of coaching applicants has caused vacant coaching positions which limit the ability of some schools to offer full athletic programs. This is a serious concern for the athletic program. To combat this problem, coaches are recruited from outside the teaching profession. During the 1985-86 school year, there were 69 high school coaches who were not teachers in the system.

In the 1985-86 school year, there were 310 interscholastic athletic coaches employed countywide. If every sport had a different coach and if all schools sponsored every sport, there would be 615 different coaches needed.

Measures have been adopted for the evaluation of coaching performances. Athletic directors are evaluated by the principal. Head coaches are evaluated by the principal and/or the principal's designee with the assistance of the athletic director. Head coaches may assist in the evaluation of assistant and junior varsity coaches.

The Athletic Program Study Committee, established in 1979, recently studied the need for full time athletic directors in the senior high schools. As a result of this study, those athletic directors who were also department chairpersons gained one period of released time. Also as a result of the study, work-study secretarial assistance for 15 hours a week is provided for athletic directors, and funds are provided for athletic directors to attend one professional conference per year. Still under discussion is the question of providing athletic directors with 10 days of in-school work time; such time to occur prior to the opening of school and at the conclusion of the school year. For the 1985-86 and 1986-87 school years, five days each year have been approved for this purpose.

Organized intramural programs are found in all middle schools. A limited number of intramural programs may be found in junior/senior high schools. Students participating in intramurals may take advantage of activity buses provided by the school system.

Activities which are outgrowths of special interest areas of physical education are offered on a short term basis (at any grade level). These activities may include dance, weight training, gymnastics, and a variety of other activities provided as student interest indicates. These types of activities are provided outside the regular school day program.

A new 1.6 grade point eligibility requirement which affects student participation in all extra-curricular activities at the high school level and interscholastic athletic activities at the junior high level went into effect at the beginning of the second semester of the 1986-87 school year. Additionally, participants must meet attendance and behavioral standards.

RESEARCH

A review of the literature produced the following findings:

- A well-directed interscholastic athletic program should be made available to all boys and girls who are interested and sufficiently skilled. This area of physical education allows students to participate in competition characterized by varsity teams, leagues, conferences, regular season schedules, specialized coaching, and high performance levels.

- The health and welfare of pupils should be the first consideration in planning an interscholastic athletic program. To protect and promote the health and welfare of competing athletes, the following conditions should be met:
  - Policies for the protection of athletes should be based on the best medical knowledge available.
  - Policies should include procedures to assure adequate medical examination plus ongoing medical supervision of all athletes.
  - Equitable competition between teams or individuals should be assured by the use of standardized classifications and eligibility requirements.
- The high school athletic program should provide full opportunities for boys and girls to compete in interscholastic athletics in accordance with their needs, abilities, and interests.
- Interschool games and contests should be administered and conducted so as to enhance wholesome social relationships among community members and students, rather than to foster conflicts or extreme behavior based on unreasonable rivalries.
- There needs to be worthwhile sports and recreational opportunities provided for the large proportion of the student body not accommodated in interscholastic sports.
- Extended day activities should be consistent with the content and philosophy of the physical education program of instruction.
- Policies should be established to protect pupils from injury or over-participation.
- Coaches should be certificated teachers, members of the school staff, and well prepared for assuming their coaching responsibilities. Certification of coaches is highly recommended.
- Athletic directors should be competent administrators and educators with a rich background in interscholastic athletics. It is recommended that athletic directors acquire specific preparation for their position through formal courses or inservice activities.
- Games and contests should be officiated by qualified personnel who are certified by the appropriate governing body or officials association.
- Each year there are more than one million high school and college students injured in sports activities. About one-third of all injuries and half the varsity sports' injuries occur in football. About 750,000 of the reported injuries occur in varsity sports and about 110,000 are considered serious.
- In most of the secondary schools, the coach or assistant coach is responsible for on-site health care when a player is injured. Athletic trainers with varying degrees of certification assume the responsibilities in some of the secondary schools.

- Making coaches responsible for athletic health care has limitations. It is difficult to supervise both sports' activities and health care which includes prevention and first-aid treatment. Additionally, most coaches feel inadequately trained for health care responsibilities.

- The use of athletic trainers is increasing in frequency. It is desirable to have athletic trainers for interscholastic athletic programs.

- A 1984-85 survey conducted by the National Federation of State High School Associations in a sampling of schools from all 50 states and the District of Columbia found that about 3.4 million high school boys and 1.8 million high school girls participated in varsity sports.

- Nationwide, participation in high school athletics rose by 12% between the 1983-84 and the 1984-85 seasons. This is the first increase in participation since the 1977-78 season.

- Nationwide, in 1985, interscholastic competition was provided in 34 different sports involving over five million boys and girls ages 15-18. Of the participants, nearly 2 million were girls.

- In the 1984-85 school year, the State of Maryland supported 17 athletic events. The combined totals for athletic participation were 73,134, 46,344 boys and 26,790 girls. During the same year, Anne Arundel County offered 15 of the 17 sports, with a combined total of 7,339 participants. Of these participants, 4,683 were boys and 2,646 were girls. This county number represents 10.04% of the state total. The two sports not offered in Anne Arundel County were badminton and swimming.

In a recent National Federation of State High School Associations publication, "The Case for High School Activities," the following benefits of school extra-curricular activities were cited:

- Students who participate in activities programs tend to have higher grade-point averages, better attendance records, lower drop-out rates and fewer discipline problems than students generally.

- Activities programs provide valuable lessons on many practical situations - teamwork, sportsmanship, winning and losing, and hard work.

- Through participation in activities programs, students learn self-discipline, build self-confidence, and develop skills to handle competitive situations.

- Participation in high school activities is often a prediction of later success - in college, in a career, and as a contributing member of society.

- High school women who participate in athletics tend to have better than average grades according to data collected in the "Study of Stanford and the Schools," a comprehensive study of Bay Area high schools. Except for those males most active in sports year-round, men who participate in sports also tend to have higher grades.

- There is a national trend to establish minimal academic grade point averages for athletic participants.

RECOMMENDATION

Every school should provide ample opportunity for participation in interscholastic athletics, intramural, and extended day activities for all students. These programs supplement physical education instruction and afford opportunities for social exchange, enrichment of individual skill development, and wholesome competition. Interscholastic, intramural, and extended day activities should be consistent with the philosophy of the physical education program. Good human relationships and community involvement are important positive products of the interscholastic, intramural, and extended day activities programs.

It is recommended that:

OPPORTUNITIES BE PROVIDED FOR ALL STUDENTS TO PARTICIPATE IN INTERSCHOLASTIC, INTRAMURAL, AND EXTENDED DAY ACTIVITIES ON AN ORGANIZED BASIS

In order to implement the above recommendation, it is proposed that:

- An organized intramural program be implemented for all students in grades 6, 7, and 8
- A high school intramural sports program be established that is not limited to those sports traditionally included in an interscholastic program
- An interscholastic sports program be created exclusively for ninth graders
- Emphasis on athletic health care be increased in the interscholastic program
- Guidelines for intramural sports be established at the elementary level
- Approved interscholastic programs be offered in all schools
- Coaches be recruited to ensure that there is coaching personnel to staff all interscholastic sports programs in each school
- Activity buses be provided to accommodate students involved in intramural activities after the regular school day
- Equitable scheduling be provided for all interscholastic sports events
- A sufficient number of paid personnel to supervise all athletic activities including admission and crowd control be provided
- Athletic directors be paid commensurate with their responsibilities and work load
- A more comprehensive list of staff development offerings be available for coaches that would include psychology of coaching, theory and fundamentals of coaching a particular sport, and additional instruction in athletic training
- Every senior high school be provided with the facilities and equipment necessary for athletic training and with a staff member with expertise in this area

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- More students will participate in organized sports programs.
- Students in grade 9, regardless of grade organization, will have equal opportunity to participate in interscholastic sports programs.
- Students will receive better athletic health care.
- Coaches will have access to courses to further their competency.
- Students who participate in sports programs will have greater access to bus transportation.
- School administration will feel some relief relative to the administration and supervision of athletic contests.

CONSIDERATION: CURRICULUM

PRESENT STATUS

Maryland Public School Law states, "Each public school shall have a program of physical education that is given in a planned and sequential manner to all students, K-12, to develop their good health and physical fitness and improve their motor coordination and physical skills." The Title IX Regulations of the federal government require that all courses at all levels of instruction be open to both male and female students.

Physical education is a planned sequence of learning experiences designed to fulfill the growth, development, and behavior needs of each student through a wide variety of physical activities. The program is designed to involve all students each year in grades K through 8. In the senior high school years students must earn one full credit as a requirement toward graduation.

Elementary school course guides were issued in 1982 to replace the 1968 guides. An organization and administration handbook for middle schools was issued in 1980 and the accompanying course guides for the middle schools were implemented in the 1980-81 school year. The high school organization and administration handbook and course outlines were also implemented during the 1980-81 school year. In 1984 a Fitness Manual was developed and was implemented in 1985. This has resulted in countywide fitness testing.

Scheduling times for physical education classes differ by grade level. Although there is no formal program delivered by a physical educator for kindergarten students, specific activity skills are included in the kindergarten curriculum, with a physical educator acting as a consultant to the kindergarten teachers. Current practice is to have physical education teachers see kindergarten students at least once a month as their schedules allow. Most are able to see them at least this often. In some cases, the physical educator provides specific instruction to students with special motor problems. The Maryland State Department of Education recommends that students in the primary grades (1-3) receive 100 minutes of physical education instruction per week, and that intermediate grades (4-6) receive 150 minutes per week. Elementary school guidelines in the county call for all students to receive two 30-minute periods of physical education per week.

Scheduling guidelines call for all middle school students and those in grades 7 and 8 in junior high schools to take physical education every other day throughout the school year. As a practical matter, however, scheduling pressures produce cases where this does not happen. Students who elect to take a foreign language and instrumental music, for instance, are unable to schedule physical education. In many schools, students elect to take two of the above three courses, with the third simply omitted from the schedule. In the school year 1983-1984, 1150 middle school students did not take physical education; for 222 of them, this was the third consecutive year for non-involvement in school physical activity.

At the senior high school level, all students must take one credit in physical education in order to meet Maryland graduation requirements. Physical education courses are offered for one semester for one-half credit. Students must complete one-half of this requirement in grade 9 by taking a course entitled "Fitness for Life I" with the remaining credit to be taken in grades 10, 11 or 12. Exceptions can be made by the principal for vocational students who must fulfill the entire credit requirement in grade nine because of scheduling difficulties. In addition, principals can waive the ninth grade requirement for foreign language and instrumental music students who will then fulfill the requirement during their final six semesters. The number of requests for waivers is increasing yearly.

In the elementary schools, physical education is defined as directed, purposeful activity centered around the entire body, its movement, care, and use. It includes learning situations that develop students physically, mentally, socially, and emotionally. The elementary curriculum guide is organized to provide instruction according to the following:

- At the primary level
    - Basic Movement
    - Manipulative Skills
    - Track and Field
    - Tumbling and Gymnastics
    - Games of Low Organization
    - Rhythms
- At the intermediate level
    - Rhythms Basic Movement
    - Skills and Lead Up Games
    - Self-testing Activities

The middle/junior high school years encompass the adolescent developmental years. Since physical activity is vital to the development of youth, the middle school curriculum guide is organized to provide for systematic instruction in a variety of activities. The activities are offered in a coeducational environment, and include such offerings as team sports, lifetime sports, recreational activities, individual self-testing activities, creative movement experiences, structured and unstructured rhythmical experiences, and other activities to develop and maintain an optimal level of physical fitness. Thus, the middle school program is meant to provide the students with exposure to a wide variety of physical education experiences which will insure success and enjoyment throughout life.

The senior high school physical education program is based on the principles of lifelong fitness. Students select from a variety of courses which fall into two categories: courses which are offered for one or two semesters and courses which are offered on three levels over three years. Students may specialize in a particular area to gain a concentrated body of expertise, or take a variety of courses to gain a broad range of physical education experience. Regardless of approach to physical education, each student has the opportunity to form positive lifelong fitness habits.

Each elementary child receives a grade in physical education. This grade is given by the physical education teacher. The following areas are considered when determining the child's grade:

- participation
- attitude - effort
- skill acquisition
- skill improvement
- individual progress

Students in the middle/junior high school physical education program are graded on the basis of meeting the objectives of each individual unit and on meeting the daily requirement of preparation for class and participation in class activities. The final grade represents a composite of the progress the student has made toward the achievement of the objectives. All grades will take into consideration the initial ability and skill level in respect to the final level of advancement in each unit. Thus, it is the philosophy of the middle school program that students be graded on their individual achievement, rather than on the basis of some class standard.

Senior high physical education students also are graded on the basis of how well they meet the basic requirements of preparation, participation, and individual achievement and improvement.

Students in grades 3, 5, 7, and 9 are required to participate in Project Superfit, a fitness test approved by the Maryland State Department of Education and the Governor's Commission on Physical Fitness, which give awards for excellence and improvement.

In 1985-86 there were 70 elementary and 132 secondary physical education teachers in the county. The central office staff includes a coordinator and assistant coordinator of physical education and two part time resource teachers, each devoting one day per week for resource help.

Staff development activities in physical education have included 23 state approved workshops each of which is offered for one credit. The workshops most frequently taken are Care and Prevention of Athletic Injuries, and Multi-Media Standard First Aid and CPR, both of which are required of all coaches.

In terms of facilities, all elementary schools have a multipurpose room and/or gymnasium in which physical education classes are conducted. Specifically, 20 have separate gymnasium facilities, while 54 do not. In addition, there are three special education centers with gymnasiums and therapy tanks.

At the secondary school level, all schools have a separate gymnasium. Separate facilities for dance, gymnastics, weight training, and wrestling classes vary greatly from school to school. Some classes meet in multipurpose rooms or make-shift areas such as converted storage areas which provide limited flexibility and adaptability due to low ceilings, limited square footage and other restrictions. At times, especially when gymnastic equipment is set up, conflicts arise in scheduling the school for use by outside community groups. Storage space is an additional concern in many schools.

In most cases, there is adequate outdoor space for physical education programs and activities. However, many of these outdoor areas need improvement to eliminate safety hazards and to render them usable to their maximum advantage. There are 135 tennis courts on county school property. Eighty-one of these courts are located at senior high schools. Some middle/junior schools share these courts. Middle/junior schools have an additional 31 courts that are not shared. The remaining 23 courts are available for use at 11 elementary schools.

Groundskeepers have been added at many of the high schools, primarily to maintain the stadium fields and other specified athletic fields. In addition, there is a county grounds department in the department of support services that performs some routine maintenance on the outside facilities and handles other maintenance requested by individual schools.

RESEARCH

A review of the literature produced the following findings:

During the last several years, four national reports have appeared that relate to physical education. The major thrust and/or findings are summarized below.

- Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention was issued in 1979. Fifteen priority areas were identified that could contribute to significant health gains in the next decade. Included among these priority areas were physical fitness and exercise.

- The Department of Health and Human Services Report, Promoting Health/Preventing Disease: Objectives of the Nation, was issued in 1980 in response to the broad goals of the Surgeon General's Healthy People. Included among the findings of this report were:

  - Most people feel better when they exercise.

  - Physical inactivity can result in decreased physical working capacity at all ages, with concomitant decreases in physiologic function and health status.

  - Physical inactivity is associated with increased risk of coronary heart disease.

  - Appropriate physical activity may be a valuable tool in therapeutic control of obesity, coronary heart disease, hypertension, diabetes, musculoskeletal problems, respiratory diseases, stress and depression/anxiety.

- Two hundred twenty-six specific health objectives were chosen to be achieved by 1990. Among them were:
    - The proportion of children and adolescents participating regularly in appropriate physical activities, particularly cardiorespiratory fitness programs which can be carried into adulthood, should be greater than 90%.
    - The proportion of children and adolescents participating in daily school physical education programs should be greater than 60%. In 1974 the figure was 33%.
    - A methodology for systematically assessing the physical fitness of children should be established, with at least 70% participation.
    - Data should be available with which to evaluate the short and long term health effects of participation in programs of appropriate physical activity.

- In 1984, the Department of Health and Human Services initiated the National Children and Youth Fitness Study in response to Promoting Health/Preventing Disease: Objectives for the Nation. Among the findings in this study were:
    - Only 36.3% of students in grades 5-12 take physical education daily - far short of the 60% national goal in the 1980 report.
    - Only 41% of students in grades 5-12 regularly exert themselves during exercise.
    - Children frequently lose the benefit of year-round physical activity because appropriate physical activity decreases during the winter. Students performing at or above the 75th percentile on fitness tests report greater participation during winter months than students performing below the 75th percentile.
    - Enrollment in physical education positively affects fitness.

- In 1984 the President's Council on Physical Fitness and Sports conducted the 1984 Youth Fitness Hearings and received testimony from the political, military, and medical communities. Following these hearings, the President's Council recommended that all children, K-12:
    - participate in daily physical education which emphasizes both fitness and skills
    - be tested twice a year in fitness
    - understand and be able to apply exercise science principles
    - have posture checks, routine health screenings, and appropriate follow-ups
    - have remedial attention as needed

- if disabled, be identified and provided with appropriate programs

RECOMMENDATION

A quality daily physical education program will develop physically fit youth with a variety of sports' skills and knowledge, and with positive outcomes in the areas of sportsmanship, citizenship and leadership. In addition, students will develop favorable attitudes toward lifetime sports and the maintenance of personal fitness. Regular and vigorous physical exercise at all ages is the only way of improving fitness. Fitness concepts should be stressed in the childhood years when the habits of a lifetime are being formed.

Research shows that there is a direct positive relationship between academic achievement and physical fitness. Therefore, physical education should be an essential part of the total educational program.

It is recommended that:

> **ALL STUDENTS TAKE PHYSICAL EDUCATION ON AT LEAST AN ALTERNATE DAY BASIS, K-12**

In order to implement the above recommendation, it is proposed that:

- Annual countywide fitness testing be conducted which will systematically assess fitness knowledge in a cognitive as well as functional manner
- An adaptive physical education program be implemented to meet the needs and interests of students unable to take part in the regular physical education program
- The Fitness Manual be fully integrated and implemented within the regular physical education program
- Curriculum revision which reflects current trends in physical education and lifetime fitness needs be ongoing
- Strict adherence to the county program philosophy which states that all students shall be graded on the basis of individual performance and progress, and that no student shall be graded on the basis of class standards, be enforced
- The physical education curriculum and staffing patterns be expanded to reflect the increased emphasis on physical fitness and greater attention to gifted/talented students
- A broad range of courses be offered at the senior high level, with emphasis on fitness and lifetime sports
- New facilities be provided to implement the increased emphasis on physical education

- Indoor and outdoor instructional areas be upgraded, including the installation of a fitness par course at each site, to accommodate curriculum and to eliminate safety hazards
- The time be provided and the training be provided to keep all physical educators abreast of current practices

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will have an increased awareness and knowledge of the importance of physical fitness.
- Students will develop a positive attitude toward regular physical activity.
- Students will demonstrate increased involvement in various forms of physical activity.
- Students will be in good physical condition.
- Students will develop an awareness of safety principles and the value of rules.
- Students will have skills for lifetime sports and personal fitness.
- Students will develop an understanding and appreciation of the performance of others.
- Students will display positive group behavior.
- Students will develop into healthy adults.

PROGRAM AREA: PLANNING

PRESENT STATUS

Currently responsibility for planning is widely scattered throughout the various departments of the school system. Long range planning is conducted primarily by two offices: the Office for Program Planning whose major focus is programmatic needs and the Office of Planning and Construction whose main concern is student enrollment projections and the concomitant facility needs. Short range planning is done by most other offices for their respective programs. Data collection efforts are often duplicated. There is no single office responsible for the continuous collection of demographics, statistics, facts, and information pertinent to the system nor for the analysis of such data to recommend courses of action. Those seeking information must go to a wide variety of sources both within and outside the system. Consequently, information disseminated by the system is sometimes inconsistent. Furthermore, there is no systematic follow-up to many reports such as the Equity Study to maintain current information and recognize changes in trends or patterns.

RESEARCH

A review of the literature produced the following findings:

- An estimated 500 school districts currently engage in some form of strategic planning and the number is increasing.
- Most major businesses and large organizations have designated strategic planning personnel.
- University graduate level courses and programs in long range educational planning are increasing.
- The Association for Supervision and Curriculum Development has formed a consortium of high schools engaged in strategic planning.
- There is a large amount of local, state, and national information of significance in planning available to school systems.
- Continuous environmental scanning (trend analysis) is necessary to anticipate change and prepare for it.

RECOMMENDATION

Technology has made tremendous quantities of information available, but this information must be collected, stored, and analyzed for it to be of use. The rapid rate of change makes it difficult for a school system, especially a large, dynamic one, to keep pace and to avoid being overtaken by the unexpected. Planning is a necessary condition if the school system is to be a leader in its pursuit of educational excellence.

It is recommended that:

AN OFFICE OF STRATEGIC PLANNING BE ESTABLISHED

In order to implement the above recommendation, it is proposed that:

- All long range planning efforts be coordinated through this office
- Long range planning functions of various offices and programs be merged under this office
- Adequate personnel be assigned to the office
- Specific and continuous time for planning activities uninterrupted by other tasks be established
- The office be equipped with the necessary technology to maintain and utilize a large database and to access major school, local, state, and national databases
- Data collection by this office be coordinated with all departments and functions of the system
- The office serve as a liaison with planning offices outside the school system

OUTCOMES

With the adoption of this recommendation, the following outcomes are proposed:

- There will be more cooperation on long range planning among the staff of the school system, county officials, and officials of other outside agencies.
- This office will serve a support function for all other departments and programs.
- Statistics and other information about the school system will be current and more consistent.
- The school system will be proactive rather than reactive.
- Major trends and patterns will be identified and the critical steps needing to be taken by the system will be defined.
- School personnel and the community will be better informed about trends and issues affecting education.

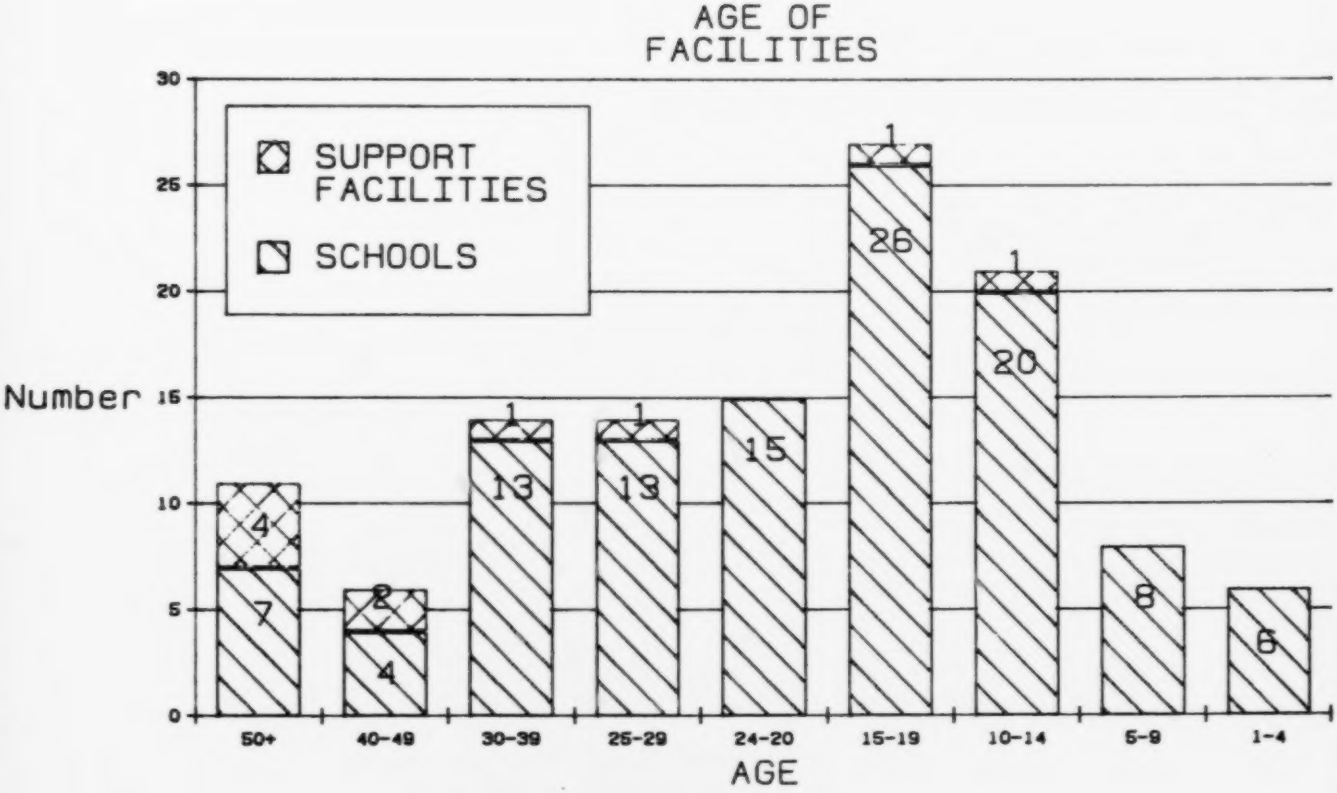
PROGRAM AREA: PLANNING AND CONSTRUCTION

PRESENT STATUS

The Office of Planning and Construction is responsible for planning, designing, constructing, and remodeling school facilities; determining the adequacy of existing structures and the need for new or upgraded facilities; and planning for construction, renovations, additions, redistricting, closures, and minor modifications to accommodate students and to support the educational programs. In order to accomplish this task the department is involved in a broad range of activities which includes facilities planning for additions, renovations, and new facilities; capital budget preparation based on demographic needs; liaison activities with the Department of Instruction to ensure facility designs are sensitive to educational goals; and advisory activities for relevant areas of concern, such as asbestos abatement and energy management.

The Planning and Construction Department has the following staff: director of planning and construction, supervisor of design and engineering, supervisor of capital project development, supervisor of student demographic planning, supervisor of construction, senior construction inspector, and three technical/secretarial positions.

The dual challenge of providing quality educational facilities for future populations while modernizing and renovating existing facilities is a most difficult task. The chart on the next page shows the age of the school facilities. At the current time seven schools are over 50 years old, 11 are over 40 years old, 24 are over 30 years old, and 52 are over 20 years old. A sustained renovation program to meet accelerating requirements for facility renovation has been developed as the 40 Year Capital Renovation and Modernization Plan. The first year was integrated into the FY87 Capital Budget.


AGE OF FACILITIES
SUPPORT FACILITIES
SCHOOLS
Number
AGE
0
5
10
15
20
25
30
50+
40-49
30-39
25-29
24-20
15-19
10-14
5-9
1-4
7
4
4
2
13
1
13
1
15
26
1
20
1
8
6

Geographic location continues to make Anne Arundel County a very attractive place to live. This, coupled with the baby boom echo, has resulted in the school system being the fifth largest in the state. There is, however, an enrollment imbalance among the 117 schools due to changing population patterns that are not congruent with existing school boundary lines. In an attempt to address this problem and other issues, a countywide redistricting study was undertaken during the 1986-1987 school year.

The enrollment chart on page 222 shows countywide projections to 1996. It is projected that the elementary school enrollments will increase from 28,589 in 1986 to 34,162 in 1996, an increase of 5,573 pupils. During this same time frame, grades 6-8 are projected to climb from 13,989 to 17,766, an increase of 3,777 pupils. However, at the senior high level (grades 9-12) there will be a continuing decrease in enrollment from 20,934 in 1986 to a low of 18,649 in 1990. From that point, a gradual increase until 1996 is projected. The bar graphs following the enrollment chart help to graphically illustrate these trends.

Projections show that the county will need a minimum of ten new elementary schools, two new middle/junior high schools, and one new senior high school in the next 10-12 years. In addition, one senior high school will need to be expanded.

There are major financial implications associated with these needs. Eight to ten million dollars is required annually to implement the 40 Year Capital Renovation and Modernization Program and $10 million is required each year to construct new school facilities in the high growth areas. It is estimated that for at least the next five years, the cost per year for asbestos removal will be $800,000. An additional $1.3 million will be needed annually for re-roofing school facilities.

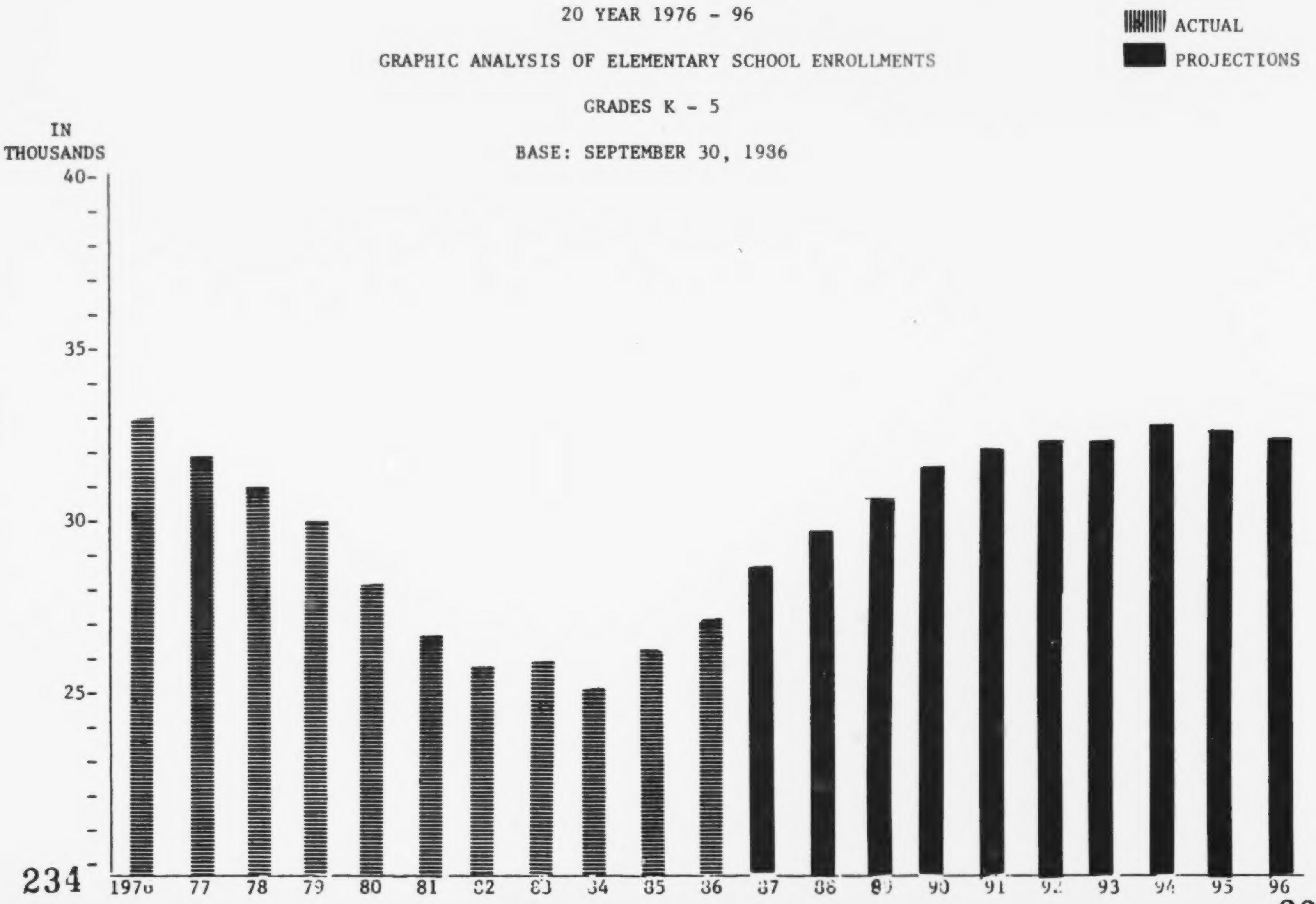
RESEARCH

A review of the literature produced the following findings:

- The development and acquisition of microcomputer technology, along with the development of microcomputer software simulation programs, now enhance the functional approach to estimating facility cost and organizing spatial relationships. The "Automate or Die" syndrome seems to have lessened in intensity; however, the trend toward magnetic media appears to be undeniable.
- Traditionally, budget reductions have severe impact on the funds available for capital construction and maintenance. In order to address the growing demands for facility space, school boards are utilizing creative financing arrangements (e.g., private sector and foundation funding and business/school partnerships).
- Implications for the facility of the future dictate that tremendous focus on designing flexibility must occur - flexibility to change spaces with a minimum of effort - flexibility to expand the facility with a minimum of cost and demolition. For example, schools should be designed which will meet present needs as well as projected future needs, and which could be used for other purposes when no longer needed as a school.

ACTUAL SEPTEMBER 1980-1986 ENROLLMENT AND PROJECTED 1987-1996

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Kindergarten	4,037	3,928	4,281	4,133	4,280	4,505	4,731	4,964	4,872	5,024	5,165	5,139	5,174	5,192	5,227	5,137	5,079
Grade 1	4,388	4,250	4,129	4,577	4,455	4,693	5,040	5,293	5,554	5,451	5,515	5,670	5,641	5,602	5,621	5,659	5,562
2	4,430	4,248	4,054	3,960	4,461	4,382	4,550	4,886	5,132	5,385	5,320	5,382	5,534	5,461	5,424	5,442	5,479
3	4,653	4,381	4,242	4,053	4,045	4,496	4,441	4,611	4,952	5,201	5,462	5,396	5,459	5,580	5,506	5,469	5,487
4	5,256	4,683	4,400	4,250	4,101	4,062	4,496	4,441	4,611	4,952	5,229	5,491	5,425	5,483	5,605	5,531	5,493
5	5,356	5,276	4,702	4,370	4,251	4,125	4,110	4,549	4,493	4,666	4,982	5,260	5,524	5,441	5,500	5,622	5,548
Total Elementary (K-5)	28,120	26,766	25,808	25,343	25,593	26,263	27,368	28,744	29,614	30,679	31,673	32,338	32,757	32,759	32,883	32,860	32,648
Ungraded	716	709	601	660	669	738	776	813	835	865	893	912	924	924	927	927	921
Ungraded PreK	33	7	124	121	131	181	204	215	267	276	285	291	295	295	296	296	294
Total Elementary Ungraded	749	716	725	781	800	919	980	1,028	1,102	1,141	1,178	1,203	1,219	1,219	1,223	1,223	1,215
Ungraded in Special Center	229	215	216	201	194	196	220	233	240	248	257	262	265	265	266	266	264
Special P.S. Program	-	6	19	18	17	16	12	18	19	19	20	20	21	21	21	21	21
Special H.T. Program	18	9	8	13	9	11	9	12	13	13	14	14	14	14	14	14	14
Total Elementary Special	247	230	243	232	220	223	241	263	272	280	291	296	300	300	301	301	299
TOTAL ELEMENTARY (K-5) + ungraded + special	29,116	27,712	26,776	26,356	26,613	27,405	28,589	30,035	30,988	32,100	33,142	33,837	34,276	34,278	34,407	34,384	34,162
Grade 6	5,369	5,476	5,379	4,837	4,553	4,472	4,329	4,313	4,774	4,715	4,889	5,220	5,511	5,736	5,649	5,711	5,837
7	5,553	5,566	5,610	5,660	5,095	4,852	4,795	4,642	4,625	5,119	5,016	5,201	5,553	5,806	6,043	5,952	6,017
8	5,563	5,500	5,492	5,549	5,575	5,118	4,865	4,802	4,649	4,632	5,104	5,001	5,185	5,516	5,767	6,003	5,912
TOTAL MIDDLE (6-8)	16,485	16,542	16,481	16,046	15,223	14,442	13,989	13,757	14,048	14,466	15,009	15,422	16,249	17,058	17,459	17,666	17,766
Grade 9	6,095	5,679	5,606	5,701	6,036	6,238	5,736	5,450	5,382	5,210	5,138	5,661	5,547	5,584	5,940	6,211	6,465
10	6,078	6,001	5,631	5,578	5,291	5,616	5,640	5,278	4,928	4,866	4,798	4,731	5,213	5,220	5,254	5,589	5,844
11	5,899	5,683	5,491	5,173	5,155	4,754	5,303	5,237	4,984	4,653	4,488	4,425	4,363	4,797	4,803	4,834	5,143
12	5,597	5,363	5,130	5,096	4,784	4,710	4,255	4,746	4,687	4,461	4,240	4,089	4,032	3,983	4,379	4,384	4,413
TOTAL SENIOR (9-12)	23,669	22,726	21,858	21,548	21,266	21,318	20,934	20,711	19,981	19,190	18,664	18,906	19,155	19,584	20,376	21,018	21,865
Evening High Ungraded	210	192	174	162	143	179	117	138	136	135	135	137	142	147	151	155	159
Learning Center Ungraded	83	57	91	51	60	62	47	59	58	57	57	58	60	62	64	66	67
Middle Ungraded	51	4	8	14	12	0	0	0	0	0	0	0	0	0	0	0	0
Senior Ungraded	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Secondary Ungraded	345	256	273	227	215	241	164	197	194	192	192	195	202	209	215	221	226
Special Centers	366	373	349	402	360	363	356	352	347	343	343	350	361	374	386	395	404
Special P.S. Program	59	56	61	53	54	57	61	60	60	59	59	60	62	64	66	68	69
Special H.T. Program	74	50	30	38	50	33	30	31	31	30	30	31	32	33	34	35	36
Total Secondary Special	499	479	440	493	464	453	447	443	438	432	432	441	455	471	486	498	509
Total Secondary (6-12)	40,154	39,268	38,339	37,594	36,489	35,760	34,923	34,468	34,029	33,656	33,673	34,328	35,404	36,642	37,835	38,684	39,631
Total All Secondary (6-12) + ungraded + special	40,998	40,003	39,052	38,314	37,168	36,454	35,534	35,108	34,661	34,280	34,297	34,964	36,061	37,322	38,536	39,403	40,366
TOTAL SCHOOL ENROLLMENT	70,114	67,715	65,828	64,670	63,781	63,859	64,123	65,143	65,649	66,380	67,439	68,801	70,337	71,600	72,943	73,787	74,528



20 YEAR 1976 - 96

GRAPHIC ANALYSIS OF ELEMENTARY SCHOOL ENROLLMENTS

GRADES K - 5

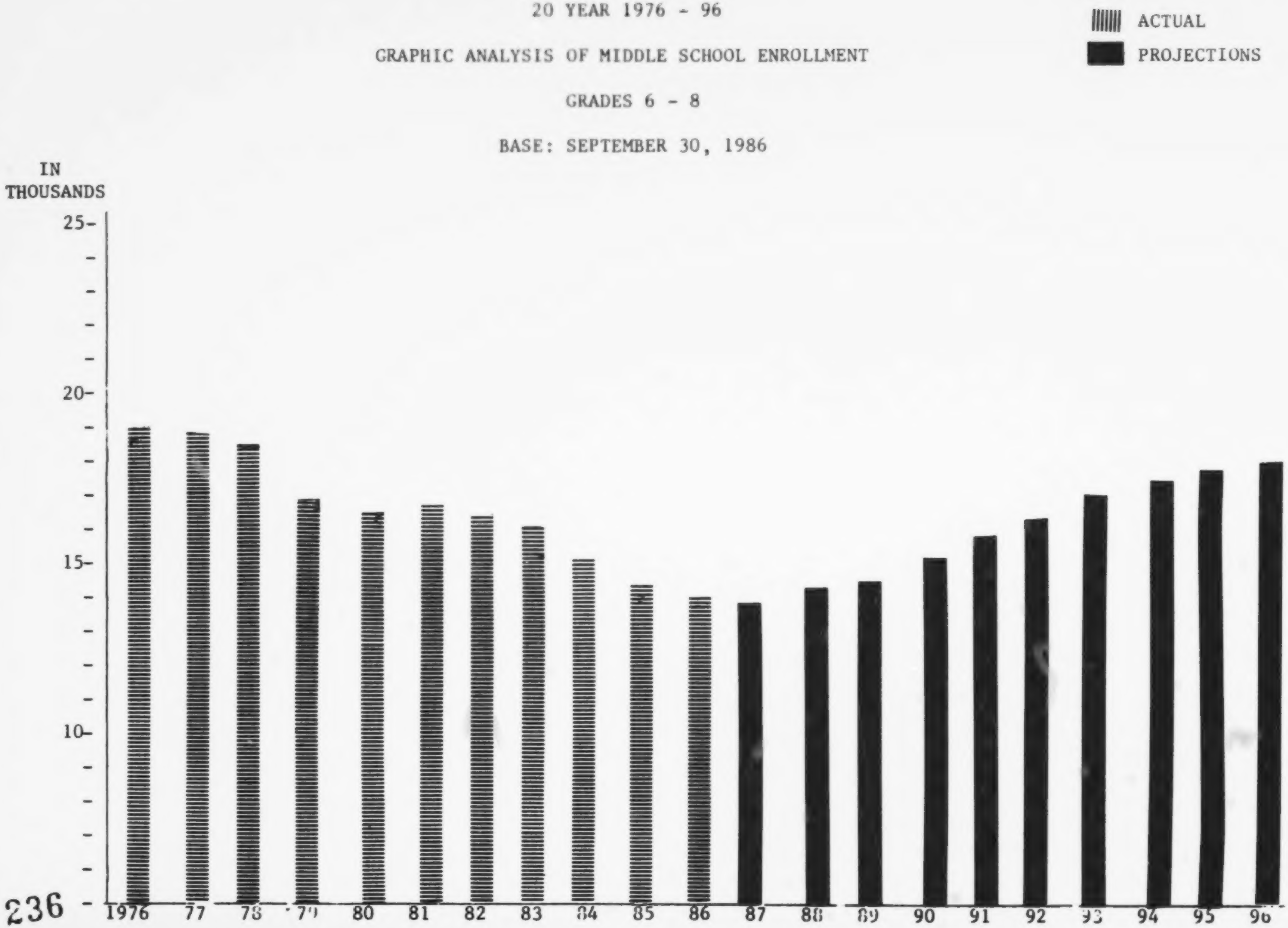
BASE: SEPTEMBER 30, 1986

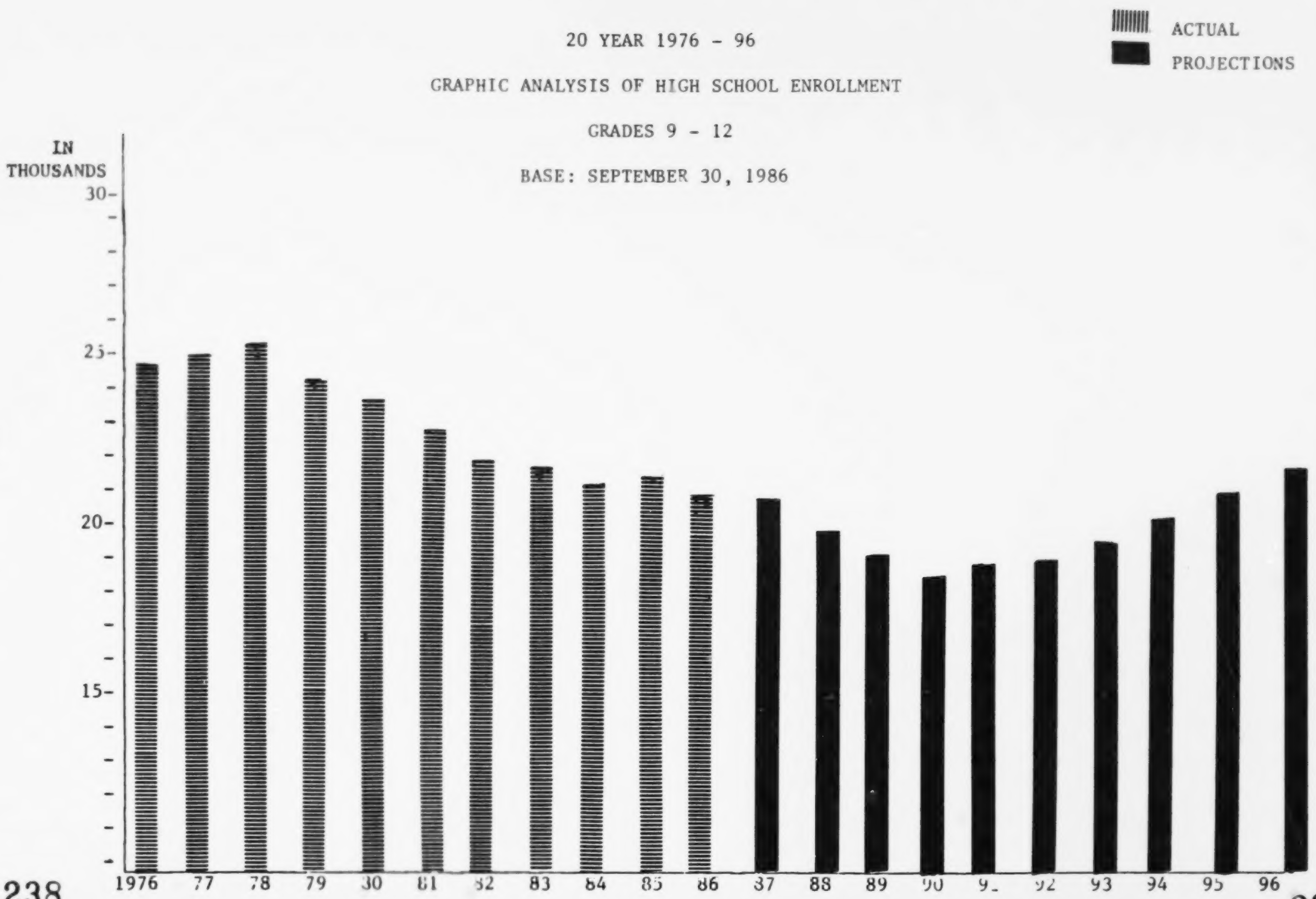
20 YEAR 1976 - 96

GRAPHIC ANALYSIS OF MIDDLE SCHOOL ENROLLMENT

GRADES 6 - 8

BASE: SEPTEMBER 30, 1986





20 YEAR 1976 - 96

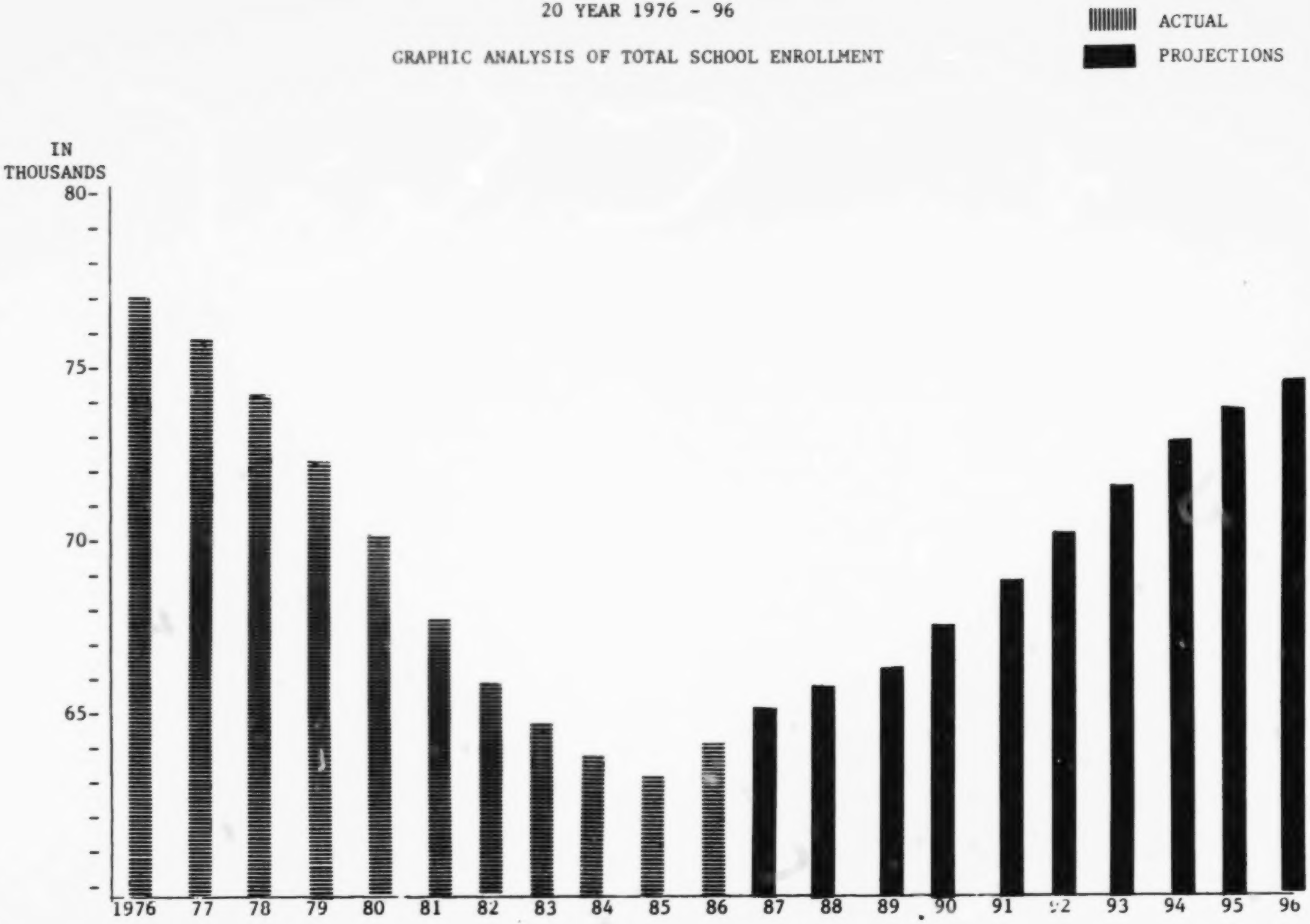
GRAPHIC ANALYSIS OF HIGH SCHOOL ENROLLMENT

GRADES 9 - 12

BASE: SEPTEMBER 30, 1986

20 YEAR 1976 - 96

GRAPHIC ANALYSIS OF TOTAL SCHOOL ENROLLMENT



- There will be a gradual softening of the commercial building market in the Washington, D.C. area; however, a need for office space in suburban Baltimore means growth in this area will make it difficult to attract qualified building contractors for the school system's projects.

- A ten year trend toward gradual growth in student population is forecast. Nationally this is predicted to level off in ten years, but in Anne Arundel County there may be a tendency toward continued suburban residential growth.

- School systems should be extremely sensitive to asbestos abatement issues and must make every effort to contain and subsequently remove all asbestos as renovations take place.

- The use of construction managers who represent the owner's interest will increase.

RECOMMENDATION

Good educational programs demand quality facilities. This county faces a challenge both now and in the future to provide facilities which will be responsive to demographic trends and which will provide physical environments which support educational goals.

It is recommended that:

> **THE OFFICE OF PLANNING AND CONSTRUCTION PROVIDE AND MAINTAIN FACILITIES WHICH OFFER STUDENTS AND STAFF APPROPRIATE PHYSICAL ENVIRONMENTS FOR LEARNING**

In order to implement the above recommendation, it is proposed that:

- A computerized student population data bank be implemented

- A computerized facilities data bank be implemented which would incorporate all aspects of facilities development such as planning, program design, and construction

- Alternative methods of financing for capital projects be developed and pursued

- Emphasis be placed on the flexible design of facilities for multiple uses

- The move from the traditional design/bid/build process to the concept of a construction manager be implemented

- An in-house facilities design program be implemented

- Staff development be implemented in order to update the construction division with state-of-the art knowledge and techniques

- Computerized programs be developed and implemented in order to more efficiently track project progress

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will benefit from better educational programs.
- Staff will benefit from quality environments.
- Community use of facilities and support of programs will increase.
- Capital funds will be managed more efficiently.
- Capital funds will increase.
- Unused and poorly utilized space will be eliminated.
- Accurate studies of enrollment figures will be available.
- Records of facilities will be continuously updated and maintained.
- Minimum modifications will be necessary to adapt facilities to program changes.
- Projects as bid will be market sensitive and of good value.
- Project bid costs will be less volatile and easier to estimate.
- Facilities design will occur in a timely fashion with an emphasis on design excellence and program compliance.
- Control and management of construction projects will improve.
- Information about projects will be available for all interested parties in a timely and orderly manner.
- Facilities will be more effectively and efficiently used.

PROGRAM AREA: PSYCHOLOGICAL SERVICES

PRESENT STATUS

The goal of the psychology program is to help the individual child gain maximum benefit from the instructional program, and to help the school adapt the program to the needs of the child.

The psychology program is designed to enable the student to:

- Develop a positive self-concept. This implies awareness and acceptance of one's individuality and an ability to express that uniqueness creatively.

- Optimally develop intellectual/academic competence. This relies on the premise that students will be working on their own level with stimuli designed to meet individual needs and interests so that they will acquire knowledge and skills commensurate with their abilities and career goals.

- Optimally develop interpersonal effectiveness. This implies the ability to make appropriate commitments, to derive satisfaction from meaningful relationships, and to interact with others to attain individual and group goals.

The psychology program is designed to enable the school personnel to:

- Understand the student's intellectual, emotional, and social assets and limitations

- Recognize the student's instructional and interpersonal needs in reference to these assets and limitations

- Decide on the most desirable program and methods for meeting the needs of students

Among the services provided by psychologists to enhance the instructional program for students are:

- Consultation with teachers, administrators, and parents

- Workshops and seminars for teachers and parents

- Psychodiagnostic evaluation of pupils to facilitate educational planning

- Individual and/or group counseling for students

- Aid in the identification of and habilitative service for all handicapped children, as well as assistance to meet the special needs of non-handicapped children as a member of the school team

- Participation at all levels in the special education admission, review, and dismissal process. At the present time at least 85% of the psychologist's time is spent in special education related functions. For example, for a student entering Special Education there are five mandated meetings with parents in the first year as well as a psychological evaluation which must be completed. Psychological evaluations must be updated at least every three years once a student has entered the program.

Presently there are 28 school psychologists and 3 psychometrists. Four of the psychologists work full time at the Phoenix Centers, three work half time at the developmental centers, and one works full time with the Parent-Infant Program. The present ratio of students to psychologists is 2,900:1, exclusive of the psychologists in special programs.

Nine of the 28 psychologists hold doctoral degrees, and all but three are certified by the Maryland State Department of Education at the highest level, Level II. The majority of psychologists fall within the 30-40 year age bracket. There are three minority psychologists - two blacks and one oriental. There are 13 male school psychologists and 15 female school psychologists.

Feedback forms are sent annually to the receivers of psychological services (teachers, counselors, speech therapists, parents, students, and all principals) to ascertain what services are provided in each school, how effective they are, and whether more service is needed. As a result of the yearly feedback, some services have been expanded or added in a given school, and additional staff members have been requested.

School psychologists' general competency areas include: psychoeducational foundations, diagnostic procedures, direct and indirect intervention, support for school and system personnel, and research. Not all of these areas of competence have been capitalized by the school system.

The school psychologists meet once a month for staff development activities. The topics covered include evaluation techniques; counseling techniques for use with students, parents, and teachers; and legal issues. Also, the school psychologists conduct staff development activities on various topics for groups throughout the county.

RESEARCH

A review of the literature produced the following findings:

- School psychologists are underutilized. Their role should be expanded to include service to students in regular education, consultation prior to referral, and follow-up after intervention in order to facilitate learning and enhance the entire educational process.
- Increased stressors on school age children (e.g., teen-age pregnancy, suicide, single-parent homes, and homes where both parents work) will result in increased needs for counseling and consultation from the school psychologist.
- Predictors indicate that there will be a disproportionate increase in the special education population over the coming years, demanding even more service from the school psychologist.
- School psychologists are increasingly becoming consultants to school system administrators. They may be involved in the interpretation and implementation of legal mandates which have an effect on their services. Also, they may recommend changes and establish programs and operational procedures system-wide.
- Continuing education is necessary to ensure competent professional service.
- Professional supervision with effective feedback is necessary to maintain and improve the quality of school psychological services.
- A ratio of one supervising school psychologist for every 10 regular practitioners is recommended.
- It is beneficial for colleagues to provide mutual assistance with self-examination of services in an organized and consistent manner (e.g., peer review).

- School psychologists can provide valuable service to school systems through research by focusing on psychological functioning of students, psychoeducational assessment tools and procedures, educational programs and processes, social system interactions, and psychological treatments and techniques applied to individual cases or groups.
- Computers can be valuable tools for the school psychologist in providing more efficient service, such as in scoring and analyzing psychometric tests, and in the utilization of historical student data bases.
- School psychologists have a responsibility to educate the public regarding the impact of mental health issues on the learning process and about the role of the school psychologist in facilitating school learning.
- There should be a ratio of one school psychologist for every 1,000 students and the maximum number of schools served by one psychologist should be four. Higher numbers serviced by a single school psychologist make it difficult to provide a comprehensive range of services in a meaningful and effective manner.
- School psychologists should have adequate office and work space, access to a private telephone, necessary materials, and clerical assistance.

RECOMMENDATION

The school psychology program is designed to facilitate the learning and social/emotional adjustment of students. Currently school psychologists spend the majority of their working time with the handicapped population from birth to age 21, either directly or indirectly through diagnosis, educational planning, behavior management, and therapy. As a result, the non-handicapped student receives the services of a school psychologist only when time permits or in the event of a crisis. Changing demographics and increased psycho-social stressors indicate that an ever increasing number of students will require the services of the school psychologist.

It is recommended that:

> **THE ROLE OF THE SCHOOL PSYCHOLOGIST BE EXPANDED TO PROVIDE INCREASED PSYCHOLOGICAL SERVICES TO THE NON-HANDICAPPED STUDENTS AND THEIR FAMILIES AS WELL AS TO THE HANDICAPPED**

In order to implement the above recommendation, it is proposed that:

- A delivery system be developed which emphasizes the provision of school psychological services to handicapped and non-handicapped students. Such a system should be proactive in nature to prevent or minimize potential problems.
- The staff development program be expanded to ensure that school psychologists maintain the necessary skills to implement the expanded delivery model by remaining abreast of new developments in the field of psychology
- School psychologists be encouraged to assist in the development of a wide variety of educational programs for non-handicapped students who are having difficulties succeeding in the regular classroom

- A comprehensive inservice program be developed which is designed specifically to assist teachers in adapting their instructional programs to the individual learning styles of their students

- The Admission, Review, and Dismissal (ARD) process for handicapped students be streamlined

- An introductory presentation to students and staff detailing the services that are provided by the school psychologist be established in each school

- A systematic and ongoing program for promoting community awareness of the services provided by the school psychologist be developed and implemented

- Workshops designed to educate students, staff, and parents in such problem areas as suicide prevention, child-abuse, teenage pregnancy, and the use of drugs and alcohol be implemented countywide

- School psychologists be involved in collaborative research efforts

- An easily accessed historical student data base system be developed

- Utilization of computers for scoring and analyzing psychometric tests be increased

- Senior school psychologist positions be created to provide more intensive supervision for school psychologists

- School psychologists' work schedules be flexible in order to accommodate the changing demographics and family structures

- The ratio of school psychologists to students be reduced

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will benefit more fully from their educational experiences.

- The diverse and complex pupil, parent, and staff needs will be more appropriately met.

- School psychologists will attain a higher level of professional expertise through more intensive clinical supervision and continuing educational programs.

- School psychologists will contribute to the determination of predictors of effective educational procedures and programs through participation in research.

- The variables of diagnosis and prescription will be more efficiently managed through computerization of data.

- The public will be more aware of the contributions made by school psychologists and the services they provide.
- More working parents will avail themselves of services without absenting themselves from work.

PROGRAM AREA: PUPIL PERSONNEL

PRESENT STATUS

The Division of Pupil Personnel Services has expanded since August 1964 when the first Supervisor of Pupil Personnel Services was appointed. From the original focus on irregular attendance, pupil personnel services have expanded to become an integral part of the educational system as it extends from the school into the home and community. The services are preventive, developmental, remedial, and crisis oriented. Programs of identification and intervention assist all students encountering academic, personal, social, or health problems.

The philosophy of the Department of Pupil Personnel is founded upon the following credo:

- Children have a right to a meaningful education regardless of their special needs.
- Good mental, emotional, and physical health is necessary for children to experience success in school.
- Children look to the school for strength, approval, and guidance.
- Children with special needs require specialized services.
- Each child is unique and valuable and, therefore, worthy of individual and special consideration.
- Pupil personnel workers are specialists trained to assess pupils' needs and to facilitate or provide appropriate services.

The Pupil Personnel Program goals are designed to:

- Promote regular school attendance
- Assist children by promoting physical, psychological, social, and intellectual growth
- Foster awareness of the unique characteristics of each child
- Develop a cooperative working atmosphere between the home, the school, and the community
- Ensure that every child eligible for a special education program receives the benefit of a public education in the least restrictive environment

- Promote and encourage the development of appropriate student behaviors

- Encourage children in the development of their ability to recognize, cope with, and solve problems

- Develop and maintain educational programs which promote more effective learning

- Promote better understanding of and access to the physical, psychological, medical, educational, and social resources available in the community to meet parent and student needs

- Identify and place students in alternative programs

In order to achieve these goals, the pupil personnel worker's role includes, but is not limited to, the following:

- Chairing the school-based Admission, Review, and Dismissal (ARD) Committees for special education services

- Making home visits

- Serving as a crisis intervention team member

- Handling out-of-area and nonresident placements

- Providing background information for case studies

- Counseling

- Making referrals to community agencies

- Coordinating alternative placements

- Serving as child advocates

- Providing assistance to families with special needs

- Serving on curriculum planning committees

- Assisting dropouts, as well as other students, with understanding career and educational opportunities

- Acting as case managers

There are 32 pupil personnel workers and one coordinator providing services to all the schools. Pupil personnel workers have an average case load of three elementary schools and one secondary school. A total of 23,337 written and oral referrals were acted upon by pupil personnel workers during the 1985-86 school year. This is an average case load of 729 referrals. Examples of some of the types of referrals and the numbers involved were attendance - 2,542; inappropriate behavior - 1,910; and academic achievement problems - 5,756 (2,514 of these were referred to special education). Education placement reviews numbered 8,310. In addition 1,283 school dropouts were contacted. During the 1985-86 school year, 52% of written referrals received resulted in some type of special education service.

Follow-up forms are sent to the principals of individual schools to monitor the department's effectiveness in meeting its goals and objectives on an annual basis.

The average age of the pupil personnel worker is 46.5 years. Pupil personnel workers have an average of 21 years in the educational system, with an average of 11 years in their current position. Of the department's professionals, two have doctorates, 14 have at least 30 credits beyond the master's degree, 15 have master's degrees, and the other two have the master's equivalent. There are 21 male and 11 female pupil personnel workers. Six of the pupil personnel workers are black, the other 25 are white.

The pupil personnel workers meet once a month for staff development activities such as guest speakers from the school system to explain programs, guest speakers from private and public agencies that provide services for school age youngsters, and visits to sites which provide services for students.

RESEARCH

A review of the literature produced the following findings:

- School attendance is a statewide concern, even though Maryland ranked the fourth highest in the nation in 1984-85 in public school attendance (91.9%). Fourteen thousand Maryland students are illegally absent every day. Twelve thousand of these are chronic truants.
    - Truancy is a symptom of many problems (i.e., learning disabilities, social-emotional problems, mental retardation, visual and hearing impairments, reading problems, abuse, drug usage, and/or parental neglect).
    - Chronic low attendance affects students' academic development as well as their emotional and social development. School absenteeism often leads to higher delinquency, a higher dropout rate, and unproductive adults with few or no marketable skills.
- Achievement patterns of elementary school children reveal that the majority of the children who will experience academic failure can be detected as early as the third grade.
- The typical dropout is characterized by one or more of the following:
    - comes from a broken home
    - is a slow learner
    - has poor school attendance
    - experiences repeated school failures
    - has little or no support services
    - has a lack of significant role models
    - tends to be transient

- Pupil personnel workers are now spending a higher percentage of their time providing special services for children and families in which the child is physically, socially, emotionally, or educationally handicapped.
- The 1984 Gallup Poll indicated that 33% of the Maryland public cited discipline as the major problem in schools. Drug and alcohol abuse was viewed as the second major concern.
- Pregnancy remains the leading cause for female students who drop out of school. Sixty-eight percent of all females who dropped out of Maryland Public Schools in 1982 did so due to pregnancy. This ranked fourth in the nation.
- The children of teenage mothers often experience educational and emotional problems. Many of these children become victims of child abuse.
- Twenty-five percent of American children are living with only one parent. By 1990, it is projected that one-half of the students now in school will have spent some portion of their childhood in a single parent household.
- In 1980, 16% of all families in Anne Arundel County were headed by single parents.
- In 1980, 64% of all mothers of school age children were in the labor force.
- In 1980, 21% of all first births in Anne Arundel County were to teenage mothers.
- Teenage suicide is the second leading cause of death for 15- to 24-year-olds.
- Working as a member of a multi-disciplinary team, the pupil personnel worker is often faced with an array of talents, personalities, and proclivities for territorial rights. The worker must be able to use his skills to transform diversity into team unity.

RECOMMENDATION

With increased demands placed on pupil personnel in the areas of academic achievement, attendance, and behavioral adjustment, the pupil personnel worker needs to continue to develop a multiplicity of skills to assist school-based staff, students, parents, and the community in enhancing the adjustment of all students.

Academic achievement, attendance, and behavioral adjustment continue to be problematic areas for which schools request pupil personnel intervention. The change in demographic patterns and the attendant social problems caused by some of these changes require adjustments to be made in delivering pupil personnel services.

It is recommended that:

> **THE PUPIL PERSONNEL PROGRAM PLACE GREATER EMPHASIS ON ASSISTING STUDENTS WITH PROBLEMS IN THE AREAS OF ATTENDANCE, ACADEMICS, AND BEHAVIOR AND THAT ALTERNATIVE PROGRAMS BE ESTABLISHED TO MEET SPECIAL NEEDS**

In order to implement the above recommendation, it is proposed that:

- Multi-disciplinary strategies be developed for dealing with excessive truancy
- Communication between schools and community agencies continue to be developed and enhanced
- Assistance be given in the development of programs to better meet the needs of the slow learner and the underachiever
- Assistance be given to the academically unsuccessful students who do not meet the criteria for special education placement in planning individual education programs
- A system to assess, monitor, and improve student behavior be designed and implemented
- Alternative programs for students within the home school be planned and developed
- Programs for dealing with potential dropouts be designed and implemented
- Programs for dealing with teen parents and pregnant teens be developed and implemented
- Cooperation be increased between pupil personnel workers and agencies to ensure that the compulsory attendance law is enforced
- Pupil personnel workers be more directly involved in the development of curriculum and the establishment of programs for students with special needs related to attendance, noncompletion of school, disruptive behavior, and single parent families
- ARD procedures be revised and streamlined to ensure that all qualified students and only those who are qualified receive special education services
- Pupil personnel workers be given direct access to a computerized student data bank which contains information necessary to efficiently and effectively provide needed services
- Preservice training be provided for pupil personnel workers
- Flex time be provided for pupil personnel workers in order to ensure that they are available to meet with parents and guardians at convenient times

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will be ensured appropriate academic placement.
- School attendance will be improved.
- Students will be better able to cope with school.

- Students will experience a greater level of success in school.

- Students will be insured due process.

- Students will be aware of educational and career alternatives and opportunities.

- Communication between home, school, and community will be improved and services will be coordinated.

PROGRAM AREA: SCIENCE

PRESENT STATUS

Scientific literacy is a term used to define an overall ability to translate knowledge of scientific facts and processes into practical applications and basic understandings.

The school system is attempting to achieve scientific literacy in two ways: through the teaching of unified science beginning in kindergarten and continuing into the secondary school years and through the teaching of 19 elective science courses at the secondary level. These elective courses focus on specific bodies of knowledge (e.g., biology, botany, chemistry, physics, and oceanography).

Students are presented with three basic learning elements: 1) a body of scientific facts; 2) an understanding of, and ability to use methodologies and techniques with which those facts may be discovered (e.g., inference, prediction, measurement, experimentation, and data interpretation); and 3) the application of the findings to practical situations.

With regard to the processes with which scientific facts may be discovered, individual process skills have been identified for use in kindergarten through ninth grade. To help teachers develop students' processes of observation, inquiry, and measurement, specific activities have been designed. Thus far, a similar document has not been produced for the secondary grades.

Staffing of the science program varies between grades at the elementary level with some teachers instructing students in science only, some teachers offering instruction in science and one or two other subject areas, and other teachers teaching all subjects throughout the day to the same group of pupils. Staffing patterns are determined at the local school level.

In the 1985-86 school year, there were 227 secondary science teaching positions. These teachers typically handle five class periods in science per day.

With regard to staff development, 21 workshop opportunities covering 12 topics have been offered to science teachers by the school system since 1974, with 19 of the 21 sessions actually presented. The remaining two were cancelled due to lack of sufficient enrollment. Additional staff development opportunities have been provided through visiting professors and industrial scientists brought in to address various topics of interest.

Since 1980, the changing profile of the typical science teacher has caused changes in the nature of the workshops being offered. Enrollments have been maintained by redesigning and writing workshops according to teacher needs. Environmental workshops related to the Chesapeake Bay and computer and technology workshops illustrate the types of workshops offered recently.

Many of the teachers' needs could not be handled effectively with an inservice/workshop format. In 1983, realizing that adequate numbers of certified science teachers were not graduating from Maryland's colleges and universities, the county initiated a teacher training program with the University of Maryland. This Certification/Upgrade Training Program both retrains non-science teachers and upgrades the skills of certified science teachers. The program enrolls approximately 20 teachers each semester. The tuition for the teachers is paid by the school system.

The Unified Science Approach was adopted in 1971 after a study of program development by a Science Task Force. The entire science program, including this approach, was formally evaluated in 1983. The K-9 program has been revised, as well as the majority of the secondary course outlines. Although several of these remain to be revised, all of them are projected to be revised by the summer of 1989.

The Unified Science Approach recognizes five unifying concepts which provide the conceptual approach for the program. The five are:

- Matter is composed of units called fundamental particles. These units of matter have certain structures and properties. Units of matter can be classified into hierarchies of organizational levels.
- Living and non-living things in the biosphere interrelate in such a way that they tend to establish a balance in nature.
- The behavior of one unit of matter may be altered by the presence of other units of matter. These interactions may be orderly or random.
- Units of matter, in the presence of energy, may be rearranged in such a way that the properties of a system undergo some change to give a new set of properties. The sum of energy and matter remains constant as the system tends toward an equilibrium state.
- Natural phenomena can be measured, described quantitatively, and/or predicted statistically.

One problem which needs to be addressed is the reluctance of many Maryland colleges and universities to recognize the Unified Science 9 course as a laboratory course to meet entrance requirements. In addition, the University of Maryland does not give lab credit for the county's physical science course.

RESEARCH

A review of the literature produced the following findings:

- Science related attitudes and performance levels of 9-, 13-, and 17-year-olds as reported by the National Assessments of Educational Progress (NAEP), and by the Maryland State Department of Education's State of Science were as follows:

- About half the 13- and 17-year-olds expressed favorable attitudes toward science classes and science related careers.
- More nine-year-olds expressed favorable attitudes toward science classes than 13- or 17-year-olds. They also appeared more willing than the older groups to try to help solve societal problems.
- Groups that typically performed below the national level on cognitive science items were also below the national level in science related experiences. Groups of 17-year-olds who were below the national level for their age were, in general, farther below it than their 13-year-old counterparts. The gap in experience levels appears to increase with age.
- Thirteen-year-olds, 17-year-olds, and young adults were fairly supportive of research activities being conducted by scientists. On the average, 72% of the 13-year-olds, 78% of the 17-year-olds, and 82% of the adults approved of spending money for various research endeavors. Levels of support were higher for applied than for basic research.

- Student attitudes toward science are directly related to attitudes held by the students' parents and to the science instruction the students are receiving.

- Attitudes toward science must be considered when developing the curriculum because attitudes can lead to rational and productive behavior only if they are based on an understanding of the problems at hand.

- On the Standardized Tests for Educational Progress, a sample of county students tested in 1982-84 scored at the following national group percentiles:

General Science	
Grade 4	82
Grade 6	82
Grade 9 - Biological Science	68
Earth Science	68
Physical Science	76
High School Biology	74
High School Chemistry	64
High School Physics	76

- Technology assessment, which is an attempt to look towards the future and is a comprehensive form of policy research that examines short term and long term social consequences of the application of technology, should be seriously considered by educators in developing curriculum. Problem-centered courses could give students opportunities to anticipate future conditions and to become aware of the possible consequences of various alternative plans and actions.

- Science curriculum materials should focus on national problems such as energy, natural resources, and health.
- A review of 63 basal high school textbooks to determine the treatment of population growth, resources, environmental problems, economic development, and the handling of these limits-to-growth (LTG) topics revealed that most contained misinformation, exhibited poor writing, and lacked objectivity. Of the 63, four made no reference to any LTG topic.
- Science education needs to address the fact that there is no free energy source for the present or the future and that all technologies are potential threats to the environment.
- Science education should examine the relationship between worldwide population growth and resource and environmental consequences.
- Students should be presented with varying perspectives on environmental issues, such as environmental regulation, wildlife, risk-benefit analysis, population control, nuclear power, the use of pesticides, coastal decisions, industrial chemicals and cancer, acid rain, safe drinking water, climate changes, pollution, and resource depletion.

RECOMMENDATION

It is imperative that all citizens be able to make informed decisions regarding complex social issues related to advances in science and technology. Therefore, it is critical that all students be scientifically literate.

It is recommended that:

> **GREATER EMPHASIS BE PLACED ON CRITICAL THINKING AND SCIENTIFIC PROCESSES SO THAT STUDENTS CAN RETRIEVE AND PROCESS INFORMATION AND APPLY THE INFORMATION TO SOLVE SCIENCE AND SCIENCE RELATED PROBLEMS**

In order to implement the above recommendation, it is proposed that:

- Guidelines for implementation of the scope and sequence plan for unified science be reviewed and modified as needed
- Curriculum guides be developed for all senior high school science courses now offered in the county which do not have guides
- Curriculum guides for senior high school elective courses be revised to better reflect student needs and interests
- Content courses be reviewed and updated to include topics identified in research as important for scientific literacy

- The Carrie Weedon facilities be developed into a Pre-K to adult Science Center with instructional facilities, a museum, exhibits, a working lab, a planetarium, and state-of-the-art science equipment which is not feasible to have in all schools

- Competency prerequisites be revised for all students who wish to take elective science courses

- The early identification of scientifically oriented students be continued and programs developed to meet their needs

- The effectiveness of the K-12 science program continue to be evaluated

- Secondary science education be moved away from a focus on job skills and toward the broader goal of preparing youth for the changing world of work

- Certification and/or qualification standards for middle school science teachers be developed

- Cooperative efforts be established with colleges and universities to increase the quality and quantity of teachers being prepared to teach science

- Programs be provided which will mitigate the problems associated with science teacher shortages

- Science instruction be provided on a daily basis in the elementary schools

- Technology, such as interactive video discs and real time data acquisition, be utilized as effective tools for strengthening instruction

- Laboratory equipment and instructional materials be acquired which reflect technological advances

- Issues of concern which are critical to a citizen's scientific literacy be specified. The list below, in particular, constitutes a range of topics which research shows should be covered as minimum if literacy is to be achieved:

    - technology

    - environment

    - energy

    - food

    - health

    - population

- Additional laboratory time be scheduled for academic science courses with appropriate awarding of credit

- Science course requirements for graduation be increased from two credits to three credits

- Standards be established for process and lab skills to be taught at each grade level

- A system for dissemination of information about sources of content, lab activities, materials, and resources be developed and implemented

- Science inservice to county teachers, K-12, be expanded and specific staff development activities be developed and implemented which deal with philosophy of programs and scientific literacy, teacher management of material, student career awareness, integrated discipline teaching techniques, application of facts, process and skills to life situations, and other important areas

- Strategies to be used with combination elementary classes be developed and implemented

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will use the conceptual framework to gather, organize, manipulate, interpret, and apply the ever increasing body of scientific knowledge.

- Students will apply process skills, knowledge, and attitudes more effectively in daily experiences.

- More students will recognize the interrelationships between science and other disciplines, as well as among the sciences.

- Students will be scientifically literate.

- Students will acquire a greater variety of interests in and enthusiasm for science that may lead to vocational and/or avocational interests.

- Students will recognize the social consequences of technology.

PROGRAM AREA: SOCIAL STUDIES

PRESENT STATUS

The K-12 Social Studies Program has been designed within a framework of major conceptual statements which have been translated into objectives, content, and suggested activities for each grade level and course. Curriculum guides and resource units are provided to assist teacher planning. The elementary curriculum begins with concepts of self, expanding outward to incorporate concepts of world civilizations. In the middle/junior high schools, the curriculum includes units of study on ancient civilizations, Latin America, and Canada in grade six; world cultures in grade seven; and United States history in grade eight. At the senior high level, students are required to take one-half credit in American government and one credit in American history. The remaining one and one-half credits required for graduation are selected from 24 elective courses. Many schools, however, require students to enroll in world history/geography by making this the only social studies option available at grade 10. College bound students may choose to take Advanced Placement United States History and/or Advanced Placement Modern European History. In addition, the curriculum is differentiated for gifted/talented students starting at grade four. Beginning with the ninth grade class of 1984-85, students are required to pass the Maryland Test of Citizenship Skills as an additional graduation requirement.

Social studies is allotted 24 minutes a day or 120 minutes weekly at the primary level and 39 minutes daily or 195 minutes weekly at the intermediate level. While it is recommended that all elementary schools teach social studies every day, some schools use a flexible schedule, teaching a longer block of social studies on some days, a shorter block or no social studies on other days. The social studies classes at the middle/junior high schools meet daily for approximately 50 minutes. In high school, a minimum of three credits in social studies is required for graduation.

Curriculum modifications undertaken since 1979 have been directed toward providing course guides at all levels and for all courses. These guides provide specific objectives, minimum content, suggested activities, and resources for the instructor. Curriculum guides are now available for all courses being offered at the high school level and for all grades K-8. In order to ensure that all students have an opportunity to meet state bylaw requirements, have a well balanced program of studies, and meet admission requirements for state universities and colleges, certain courses have been designated as core courses to be offered in all senior high schools.

Over the years, enrollment in economics has increased, while the enrollment in consumer economics has declined. This decline can be attributed to the requirements of the Maryland Test of Citizenship Skills. American Goverment and The Law And The Individual now comprise the program at the ninth grade level. Throughout the K-12 curriculum, emphasis is placed on rules and laws and on government at the local, state, and national levels. A correlation exists, K-12, between the county curriculum and the content of the Maryland Test of Citizenship Skills. In addition, appropriate assistance is provided to all senior high students needing to pass the citizenship test.

Emphasis has also been placed on expanding the scope of world history to include a study of cultures outside Europe. In addition, a new course, International Studies, has been developed to provide students with an opportunity to apply their knowledge of the world to a consideration of how cultures interact. This broad approach to the study of world affairs has replaced courses focusing on specific regions of the world.

An effort is made to maintain current materials in order to ensure the program's relevancy. There is an approved list of computer software and the use of the computer is encouraged. At the secondary level, the computer is particularly useful as a tool for handling data bases for decision-making.

Class size at the elementary level varies according to the staffing patterns adopted by the school as a whole. Certain concerns unique to the elementary level include the low priority given to the purchase of social studies materials, the lack of funds for field trips resulting in a limited number of trips, and the lack of continuity for some students due to the practice of combining classes. Combination classes have increased in recent years.

Class sizes at the secondary level vary because of the need to provide special assistance to students of lower ability or to provide opportunities for special social studies electives. Smaller than average class sizes are established to handle these programs.

An additional concern at the secondary level has been the new state bylaw concerning the certification requirements for social studies teachers. The concern has been somewhat alleviated because many teachers have now taken the additional credits and are certified in the particular area in which they teach. However, even though some teachers have the requisite knowledge and expertise, certification requirements prohibit them from teaching more than two classes in their area of expertise.

Staff development is an integral part of the social studies program. Both professional workshops offered through the Staff Development Office and special workshops to improve specific skills offered through the Social Studies Office are part of the effort.

Specific workshops have been offered in such areas as critical thinking skills, advanced placement, using the newspaper in the classroom, metacognition, using audio-visual materials in the classroom, questioning skills, study skills, and computers. These workshops often reinforce the social studies priority for the year, and are offered to selected teachers who in turn provide materials to other staff members.

Professional workshops are offered each semester and during the summer. Approved workshops include International Studies, Critical Thinking Skills, Indians of North America, The Constitution, Local Colonial History, and Exploring New Trends in Social Studies. Workshop attendance is generally good with from 12-20 teachers participating in each workshop.

In addition, social studies teachers are encouraged to attend national, state, and local workshops with released time and financial support from the central office.

RESEARCH

A review of the literature produced the following findings:

- The social studies curriculum - courses, materials, and content - focuses primarily on specific facts and broad conclusions from history and other social science disciplines rather than on critical thinking skills, social science concepts, values and attitudes, and social participation.

- Many students leave school without the knowledge, skills, and attitudes that are important and desirable outcomes of social studies programs. More time and emphasis needs to be placed on applying content to the solution of problems.

- The culture and organization of schools, especially at the secondary level, focus much of the energy of teachers and administrators on matters of management and control, thus limiting the opportunity for teachers to teach and for students to learn.

- Parts of the social studies profession, in varying degrees, are characterized by considerable disagreement on the most important goals and objectives of social studies and by a decided lack of direction, satisfaction, opportunities for professional growth, and constructive interaction among the various participants.

- Partly because of the lack of agreement within the social studies profession, there is insufficient public support for and understanding of what constitutes social studies programs which are balanced, judicious in responding to special interests, supportive of democratic values, scientifically and educationally sound, and relevant to the present and future lives of students.

- If there is any definite, identifiable trend in social studies reform , it is a search for coherence. In the colleges, it is taking the form of an increased interest in general education for citizens as a necessary foundation for both informed civic participation and further specialization. In the schools, mini-courses have been discarded and districts are reviewing their curricula with a view to greater coherence.

- The scope of social studies has expanded throughout the twentieth century - slowly at first, then rapidly in recent years. At first the expansion was in the basic social sciences and then, in recent years, it broadened to include special topics and problems. The increase in the scope of social studies has contributed to a multiplicity of goals and objectives. Goals and objectives are often added, but few are dropped.

- Formal written rationales for social studies programs are virtually nonexistent. Rationale-building is something that few people in education have been socialized to do, although lately the arguments to do so have been appearing more frequently.

- The dominant pattern of curriculum organization for elementary social studies (K-6) is the "expanding environments" framework. The "expanding environments" pattern is based on the theory that social studies content should begin with the immediate environment of the child (self, home, school) and move outward to the community, state, nation, and beyond.

- There is a need for initiatives for the gifted in social studies education, including social studies curriculum integration, role-playing, the development and application of innovative materials, and consideration of the implications of brain research for gifted education in social studies.

- While American schools have long offered some kind of international education, the approach to this topic has been characterized by a Western orientation and omission of information about other cultures. Such approaches to international education are no longer consistent with the needs of an interdependent world.

- The possibility that technology can be used to provide citizens direct access to and participation in political decision-making processes will influence the social studies curriculum like no other innovation or event in history. Teachers should introduce basic concepts of responsibility and participation in terms of direct democracy.

- The fact that American history, world or European history, and government/civics have continued to dominate the nation's secondary school social studies curriculum, in spite of the opposition of many reformers and in spite of the passing of fashions and fads, is due not simply to inertia, as some have argued, but to a recognition by schools that these subjects are central to the education of citizens.

- The teaching of concepts is a favorite concern of social studies reformers, and conceptual teaching is frequently advocated. Conceptual teaching seems often to mean teaching concepts with content used more or less illustratively.

- The nature of the social studies disciplines and their relationships to each other have constituted one of the most persistent problems in social studies education. There are three issues in relation to the disciplines to which social studies reformers should attend: (1) nature of the disciplines, (2) the nature of their relationships, and (3) the problem of synthesis, all considered in the context of the value and purposes of social studies education.

- Citizenship or citizenship education, always with the connotation of good citizenship, is very frequently cited as the central, primary, overarching, basic, or major goal or focus of social studies.

- By far the most common general classification of social studies goals in recent statements is a division into knowledge, skills, attitudes or values, and participation. Participation, the belief that learning by doing is an effective way of learning, and that participation is the duty of a good citizen, is a relatively new addition to knowledge, skills, and values as major goal clusters in social studies.

- At the beginning of the 1980s, several trends were curiously like those of the late 1950s: concern with "the basics;" attention to academically talented students; and demands for more and better mathematics, science, and foreign languages.

- Nationally, the articulation of the social studies curriculum is reported to be weak at all grade levels. Little awareness was expressed by secondary teachers concerning the teaching of social studies in the elementary schools.

- In the primary grades (K-3), perhaps the most significant trend is the decreased attention being given to the social studies curriculum. About two-thirds of the K-3 teachers surveyed indicated that inadequate time to teach social studies was a significant problem. In many districts, science and social studies compete with physical education, art, and music for a daily period.

- Elementary teachers feel more qualified to teach reading and math than social studies and science. They also spend more time teaching reading and math.

- Social studies teachers are not very active in their professional associations. However, they value other teachers as sources of information about new developments in their field.

- **Most social studies instruction, regardless of grade level, is conducted in traditional classroom arrangements, led by a single teacher rather than by teams or in clusters.**

- **The available evidence suggests that recitation has been, and is at present, the typical mode of instruction in social studies. While recitation has dominated, inquiry has been used in the school more frequently than is generally recognized. Nationally, however, social studies instruction has been and continues to be overwhelmingly teacher-dominated.**

- **The need for more information and training are factors which limit the use of computers in social studies classes. Elementary teachers seem to doubt the efficacy of computers as an instructional resource. There is also a concern that relevant software is not available for use in social studies.**

RECOMMENDATION

Students must be prepared to live in an increasingly interdependent world. In order to actively participate in such an expanded community, students will need to possess values and attitudes, participation skills, critical thinking skills, and problem solving skills. A social studies program which is focused on the acquisition of these attitudes and skills along with a knowledge and understanding of social science concepts and important societal issues will help prepare students to function successfully in the 21st century.

It is recommended that:

> **THE SOCIAL STUDIES CONCEPTUAL FRAMEWORK BE FURTHER DEVELOPED, AND MODIFIED IN ORDER TO PREPARE STUDENTS TO LIVE IN AN INCREASINGLY INTERDEPENDENT WORLD**

In order to implement the above recommendation, it is proposed that:

- Program offerings be reviewed and updated to reflect changing needs of students and society

- Program offerings be reviewed and updated in order to be proactive and to anticipate societal needs

- A county rationale and philosophical statement be developed which explains how social studies addresses the nature and needs of the individual, the nature and needs of society, and the relationship between the individual and society

- The social studies skills sequence chart be revised to more clearly define social studies skills at the elementary and secondary levels

- The idea of world interdependence and respect for the global environment be fostered throughout the curriculum

- The teaching of economics as a survival skill in a highly complex technological society continue to be emphasized

- The articulation between the elementary and secondary levels be improved

- The emphasis on citizenship and national, state, and local government be continued
- Field trips to enrich classroom instruction be encouraged
- Social studies content be utilized to teach reading, writing, debating, listening, and thinking
- Computers be used to reinforce social studies instruction at the elementary and secondary levels
- A variety of teaching techniques be emphasized in order to address the multiple learning styles of students
- The current social studies staff development component be expanded to include computer literacy, teaching of study skills, and awareness of new methodologies
- Active participation or "learning by doing" be emphasized as a major goal of all social studies programs
- The career and lifelong implications of social studies concepts be emphasized to students
- Technology be used to provide opportunities for students to actively participate in the processes of citizenship
- Student participation in volunteer programs be supported
- The social studies program be fully implemented at the elementary school level
- Inservice training in the special needs of gifted/talented students be continued for the regular elementary classroom teacher
- Gifted/talented students be identified and placed in special groups at the secondary level
- Schools be staffed to avoid the need for out-of-field teachers in socia studies

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will understand the historical development and present functioning of the political principles, institutions, and processes needed to be effective citizens.
- Students will understand the historical development and current status of the economic principles, institutions, and processes needed to be effective citizens, consumers, and workers.

- Students will understand and respect themselves and the diversity of individuals.

- Students will understand and appreciate the history and diversity of world cultures, the reality of human interdependence, and the need for world cooperation.

- Students will understand the role of culture, technology, and the environment in the location and distribution of human activities.

- Students will gather information, think critically, solve problems, and make rational decisions.

- Students will demonstrate commitment to human dignity, justice, and democratic processes.

PROGRAM AREA: SPECIAL EDUCATION

BACKGROUND

Public Law 94-142 and Maryland State Bylaw, COMAR 13A.05.01, mandate free, appropriate special education services. These laws are specifically designed to meet the unique needs of handicapped children ages 0 to 21. Services required by these laws are consultation, classroom instruction, instruction in physical education, home and hospital instruction, and related services. Related services include transportation, speech therapy, audiology, psychological services, physical and occupational therapy, recreation, early identification, assessment, counseling, and medical service for diagnostic or evaluation purposes. These services are an integral part of the educational process designed to focus on the handicapped student.

To insure implementation and continued monitoring, the identification, assessment, and placement of students is documented and validated through a comprehensive Admission, Review, and Dismissal (ARD) process. Student and parental rights are safeguarded throughout the process.

The following eleven handicapping conditions are recognized under Federal and State law: deaf, hard of hearing, visually handicapped, deaf/blind, orthopedically impaired, other health impaired, speech impaired, mentally retarded, multi-handicapped, seriously emotionally disturbed (SED), and specific learning disability (SLD).

PRESENT STATUS

During the 1985-86 school year, over 8,000 handicapped students received special education services. These services were provided by a staff of 593.2 positions. In order to meet the unique and specialized needs of these students, the following programs and services were provided.

Level I - Help for teacher

This degree of intervention is provided for students who are appropriately served in the general education program with the addition of supplementary services. Level I services are designed to assist the general education teacher in the development and implementation of an Individualized Education Program (IEP) through the provision of supplementary services not normally provided in the general education program. This could mean special materials and equipment, as well as consultation with the general education teacher. Eight hundred twenty-one (821) students received service at this level.

Level II - Help for student - up to one hour daily

This degree of intervention is provided for students who are appropriately served by receiving direct special education services up to one hour per school day. Level II services provide a degree of intervention not possible within the general classroom setting. The instruction may be offered on an individual basis or in small groups. In addition, special educators provide assistance to the general education teacher by suggesting activities which might enhance the student's achievement when the student is operating within the general setting. Three thousand two hundred sixty-seven (3,267) students received service at this level.

Level III - Help for student - from one to three hours daily

This degree of intervention is provided for students who are appropriately served by receiving special education services more than one hour but not exceeding an average of three hours per school day. The purpose of Level III services is to provide intensive assistance on a regular basis, while still maintaining the student within the general school setting. In addition, special educators provide assistance to the general education teacher by suggesting activities which enhance the student's achievement within the general classroom setting. One thousand nine hundred seventy (1,970) students received service at this level.

Level IV - Help for student - from three to six hours daily

This degree of intervention is provided for students who are appropriately served by receiving special education services more than three hours and up to six hours per school day. The purpose of Level IV services is to maintain the student within the general school setting. Services include special education instruction and related services as prescribed in the student's IEP. The students will continue to have the opportunity to participate in the general education program as appropriate and have access to other supplementary services consistent with those provided students in the general education program. Thus, for example, the special education and regular students eat together, play together, use the media center together, and may attend certain classes together. However, most of the instruction for the student receiving Level IV intervention takes place in the special education classroom setting. One thousand five hundred eighty (1,580) students received service at this level.

All elementary schools offer services to handicapped students in Levels I, II, and III. However, Level IV students are clustered in specific schools across the county because of the students' need for self-contained classes and because small numbers of Level IV students in some schools may make it impractical to provide such services in the home school setting. Each secondary school serves Levels I, II, III and IV students in a departmental arrangement.

Level V - Help for student - all day in special setting

This degree of intervention is provided for students who are appropriately served in a comprehensive special education setting for the entire school day. A comprehensive special education setting refers to a location providing special equipment, materials, personnel, and services not usually found within a general education facility. This comprehensive setting could be a wing of a comprehensive school or a separate school. Five hundred forty-two (542) students received service at this level. The school system maintains seven special education schools for Level V students.

Three centers (Central Special, Marley Glen, Ruth Parker Eason) are maintained to serve those students whose individual education needs can best be implemented in a training and development program. The facilities, staffs, and curricula are planned specifically to meet the special needs of students assigned to the centers. The three centers are located in different geographical locations of the county. Close to 400 students received services at these three centers.

Four centers provide a therapeutic environment which serves the seriously emotionally disturbed (SED) students. Students residing in the northern part of the county are served in three centers. The elementary population is served at Phoenix-Glendale, located in a wing of the Glendale Elementary School; the junior high population at Phoenix-Corkran, located in a wing of the Corkran Junior High School; and the senior high population at Phoenix-Andover, located in a wing of the Andover Senior High School. Elementary, junior, and senior high SED students residing in the southern part of the county are served at Phoenix-Annapolis, a self-contained school building. One hundred and forty-two (142) students received services at these four centers.

Level VI - Help for students - 24 hours a day

This degree of intervention is provided for students who may appropriately be served only through 24-hour special education programming and personal care. Level VI services are designed to provide instruction or treatment, or both, on a short or long term basis in a residential setting. Services include a comprehensive special education program, special equipment, related services as required, and 24-hour personal care. Forty nine (49) students received service at this level.

Home and Hospital Teaching

This program provides regular home and/or hospital instruction for any student unable to attend school due to a physical or emotional impairment of more than four weeks duration if the student's prognosis is that he/she can benefit substantially from instruction. The teacher, who has conferred with the student's regular teachers, conducts classes "on location" so that the student can continue to progress in his/her school work. Three hundred and twenty (320) students received services through this program.

Itinerant and Related Services

Special education itinerant and related services include Child Find; vision, hearing, speech and language, and health services; and assessment.

Child Find is the Special Education Location and Referral Service. Its purpose is to locate within Anne Arundel County all children who may require special education services. These children may be referred to the school system's special education office by anyone who may have reason to suspect that such services may be needed.

Vision, hearing, and speech and language services are provided for students who are impaired in vision, hearing, or speech and language by teachers and therapists certified in these specialized areas. Support services include direct instruction, consultation with teachers, adaptation of classroom materials, and development of special education materials, such as braille and non-verbal communication systems. Liaison service is provided with the Maryland School for the Blind and the Maryland School for the Deaf.

Health Services are provided cooperatively with the Anne Arundel County Health Department. Services provided are physical therapy, occupational therapy, nursing, audiological service, vision screening, medical consultation, and counseling services.

Prior to classifying a student as handicapped a thorough screening and assessment procedure takes place. Assessment consists of a battery of nationally standardized tests in areas such as reading, mathematics, spelling, writing, language, and perceptual motor functioning. Psychological assessment data is also obtained as necessary.

When an educational diagnosis is not feasible at the school level, the school ARD Committee refers the student in question to the Mobile Diagnostic Team. Members of this team go to the school to assess the student. After the diagnosis is made, a report is sent to the home school.

A Diagnostic Center located at George Cromwell Elementary School provides educational diagnostic and prescriptive services for those students who, because of the complexity of their handicaps, cannot be diagnosed at the school level by the Mobile Diagnostic Team.

Support Services

In addition to services for handicapped students, the Office of Special Education places a major emphasis on assisting school-based special education personnel.

Nine central office resource teachers with expertise and experiences in the various handicapping conditions (e.g., hearing and vision impaired, mentally retarded, etc.) assist special education teachers and speech therapists in schools in the identification, diagnosis, planning, and prescription for students with special needs. In addition, the special education central office resource teachers assist school staffs in the implementation and evaluation of special education programs.

Nine Learning Disability (LD) Project facilitators work in 36 elementary schools assisting school teams in the identification and placement process. These facilitators also assist general education teachers with teaching strategies to better accommodate special needs of students in the general education classroom.

A Special Education Staff Development Center located at Pasadena Elementary School provides individualized inservice training to special education teachers and speech therapists serving elementary, middle/junior, and the Phoenix Center schools. The Center's staff includes a lead teacher, three itinerant teachers and a part time speech therapist. In addition, two staff development inservice days are provided each year. A specific area which is determined through a needs assessment is highlighted yearly. The 1985-86 inservice activities were targeted for those teachers working with Level IV primary age students. The pragmatic use of language was the focus of this staff development activity.

Curriculum

Efforts are made to parallel the special education curriculum with the general education curriculum. This facilitates mainstreaming. Social studies and science curricula have been completed for middle/junior and senior high school. The first component of an updated total curriculum for the developmental centers has been completed and put into use.

Special education students, like all students, must or will have to pass the Maryland Functional Tests in order to receive a Maryland High School diploma. The timetable for implementation, however, is more gradual for special education students.

Vocational Experience Program

Beginning in grade 11, students have the opportunity to be a part of the Vocational Experience Program. This culminates in grade 12 when the students go out on jobs in the community and earn a salary. During the 1985-86 school year, 257 students particiepted in this experience.

RESEARCH

A review of the literature produced the following findings:

- Cooperation between vocational education, the private community, and special education needs to take place in order to prepare the handicapped to take their place in the work force as productive, integrated citizens. Specific job skill training should focus on the service and technological industries which anticipate a 40% increase in jobs during the next 10 years according to the United States Bureau of Labor Statistics.

- Cooperation between general education personnel and special education personnel facilitates efficient and effective student learning. Specific instructional strategies which focus on language based instruction, oral communication, behavior analysis, and the application of educational assessment and diagnosis augment the handicapped students' ability to be educated in the least restrictive environment.

- Special education curricula which is student centered within the context of basic skills increases many handicapped students' ability to successfully integrate into the general social and educational community. Instructional programs such as community service projects, internships, and work experiences facilitate this integration.

- The number of identified handicapped students is increasing in Anne Arundel County. In the last eight years the number of students diagnosed as specific learning disabled (SLD) has almost doubled. Greater emphasis on early identification and intervention, the disproportionate number of handicapped children among military families stationed within the county, and the additional special education services to handicapped students enrolled in private and parochial schools have contributed to this increase.

- A disproportionate number of children born to teenage mothers have handicapping conditions. This, coupled with the fact that teenage pregnancies are on the increase, has significant implications for special education programs.

- The number of trained special education personnel is inadequate to meet current and projected demands. According to recent demographic studies, Anne Arundel County anticipates a severe shortage of special education teachers and speech/language therapists. In addition, current data reveal that the attrition rate among special education personnel is extremely high and averages 18% per year. This is in contrast to an attrition rate of 5% or less among elementary and most special area teachers. The cumulative attrition rate for all special education teachers ranges up to 50% at the end of a five year period.

- New technology, including the use of microcomputers, is successful in facilitating effective instruction to handicapped students, as well as efficiently aiding in the administration and development of special education programs.

- Physical environment especially designed to meet the specific needs of handicapped students increases school success. Factors such as lighting, room arrangement, room location, adequate space, and ambient noise level are often critical determinants of learning achievement among handicapped students.

- Early intervention programs have been proven to be cost effective and to display a high positive correlation to later school achievement.

- The number of handicapped students entering special education with multiple and severe health needs is increasing. Recent court decisions regarding handicapped students exhibiting various communicable diseases and other serious health concerns are necessitating the demand for appropriate special education for these students.

- Greater emphasis should be placed on programs which aid the student in the transition from school to the work place.

RECOMMENDATION

With the projection of increasing numbers of children with handicapping conditions entering the school system, special education will continue to be a vital support service to general education. Special education provides a wide array of services in areas such as academics, social/emotional support, and physical health needs. In addition, it enhances the transition to work by providing opportunities for students to acquire and practice the skills which will help them to become self-supporting contributing members of society.

It is recommended that:

PROGRAMS BE FURTHER DEVELOPED FOR HANDICAPPED STUDENTS TO MEET THEIR NEEDS IN THE LEAST RESTRICTIVE ENVIRONMENT

In order to implement the above recommendation, it is proposed that:

- All personnel involved be encouraged to work cooperatively to provide services for handicapped children
- Entrance requirements be strengthened and refined to ensure that all and only qualified students receive special education services
- Provisions be made to meet the needs of the increasing numbers of identified handicapped students, including students with severe and multiple health needs
- Provisions be made to ensure that an adequate number of trained special education personnel be available to meet current and projected demands
- Early intervention programs be continued and expanded
- Special education instruction be student centered
- Cooperation be increased between vocational education, the private community, and special education to prepare handicapped students to take their place in the work force
- New technology, including the use of microcomputers, be utilized in the instruction of handicapped students as well as in the administration and development of special education programs
- The physical environment be designed to meet the varying needs of handicapped students
- An increased amount of regularly scheduled planning time between special education and general education personnel be allocated
- Special education personnel be included in appropriate inservice activities with general education teachers
- Counseling services be provided at elementary, secondary, and special schools for handicapped and special needs students, with special emphasis on SED students
- Joint instructional planning time among special education teachers, aides, speech therapists, occupational therapists, and physical therapists be allocated when handicapped students receive multiple special education services
- Staff inservice be held to facilitate cooperative planning and instruction
- Interagency cooperation be continued and expanded

- In-depth inservices be provided for handling and managing of students with severe and/or multiple health needs

- The staffing ratio be adjusted to reflect the number of hours spent in instruction and the time spent in assessment, Educational Management Team/ARD meetings, Level I service, IEP development and evaluation, consultation, and cooperative planning

- Professional improvement activities be greatly increased

- Opportunities for professional recognition be increased

- The delivery of health-related services for students be improved

- The summer school program for special education students be refined

- The concept of cluster schools for Level IV services be continued and refined to ensure a primary and an intermediate Level IV class be housed in the same building to facilitate better instructional teaming and improved availability of itinerant services

- Community-based training designed to get students out and interacting in the community be an integral part of the students' experiences

- Transportation be made available for taking small groups into the community so that students can experience community life first hand

- The Learning Disability Project be evaluated and refined

- Programs be implemented for students identified as behavior-disordered and slow learners

- Appropriate, comprehensive, pre-vocational, and vocational curriculum for handicapped students be developed through the collaboration of vocational and special education staff

- Staff be provided at the applied technology centers who are capable of working effectively with handicapped students

- A longitudinal follow-up survey for the Vocational Experience Program be implemented

- State-of-the-art computer assistance for IEP development, record keeping and instruction be provided

- Adaptive devices (e.g., augmentative communication devices, braillers, amplification equipment, etc.) be provided

- Factors such as room location, adequate space, noise level, lighting, ventilation, and necessary facilities be considered when selecting a special education learning environment

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- The quality of instruction and related services to handicapped students will be improved.
- Handicapped students will be appropriately identified, assessed, and placed.
- Handicapped students will be appropriately grouped for instruction within each school.
- The grading of handicapped students' performance will reflect their achievement.
- Current staff will be kept abreast of research and methods as these impact upon their teaching and handling of handicapped students.
- Handicapped students will have increased opportunities for employment and community integration.
- Adequate numbers of well-prepared special educators will be available and retained.
- Public awareness of special education services will be increased.

PROGRAM AREA: TECHNOLOGY
CONSIDERATION: INSTRUCTION

The instructional use of computers in the school has grown rapidly. The first computers used for instructional purposes were Radio Shack computers purchased in 1979 with Title IVB Library Learning Resource funds. They are now being phased out. By the 1986-87 school year, there were over 2000 Commodore and Apple computers in use throughout the system.

Staff development for instructional computing has been handled primarily by the Computer Education Office working in conjunction with the Staff Development Office. Numerous sections of a computer literacy inservice course for teachers have been held. Computer programming courses are also provided. In addition, several offices of program coordinators have offered specific content area computer literacy courses. The Office of Computer Education also sponsors various inservice offerings dealing with topics of current interest.

Classes have been offered in the Pascal language in conjunction with the University of Maryland and in computer applications in conjunction with the Anne Arundel Community College for teachers who are or will be teaching Computer Science courses.

Interactive cable television was implemented in September 1983 with four schools and five courses. At the present time 12 senior high schools have interactive cable television. Five are with North Arundel Cable, five with Jones Cable, and two with

United Cable of Annapolis. A total of 23 courses, some year long and some one semester, were conducted via cable television during the 1986-87 school year.

The purpose of interactive television is to offer courses that would not otherwise be offered due to low enrollment. Course offerings are not selected until after registration. Other television courses or programs are used only as a supplement to the regular classroom instruction.

The school's participation in cable programming has expanded to where there is now an Education Bulletin Board which runs several times during the day on "off time." Bulletin board computers send the news by direct access to the three cable networks. In addition, student news programs are being televised with students writing, producing, directing, and broadcasting the news. Tapes of original student productions are shown, as well as rebroadcasts of Instructional Television (ITV) programs. Annapolis Senior High School began televising extracurricular activities such as basketball games live during the 1986-87 school year.

RESEARCH

A review of the literature produced the following findings:

- Because the computer can work equally well in the home, the public library, the factory, or the office, there must be a reason to go to school. Educators must accept that fact and meet the challenge.
- Because the new technologies are a phenomenon of civilization, education cannot escape them.
- If schools refuse to make full use of technology, they will be bypassed as irrelevant.
- Computers are transforming the nature of education and the functions of teachers and schools.
- Computer literacy is the skill which allows communication between humans and computers.
- Computers should be widely used in the process of instruction.
- The computer supports and enhances free, creative personal discovery and learning.
- The computer used as a personal learning tool can expedite the perception of implications and interrelationships which normally take a long time to discover, and thus it is able to accelerate the normal rate of cognitive development.
- Computers can provide sustained drill and practice in essential skills in varied and interesting ways.
- Educational software can perform routine tasks which normally occupy an inordinate amount of a teacher's time and energy.

- Computers can enable teachers to concentrate on teaching higher levels of cognitive skills.

- The emerging trend is that students will not work on computers in isolation from one another but rather in small groups or teams in direct contact or linked through networked terminals.

- The role of the teacher will shift from being the primary source of information and a disseminator of the information to an information facilitator.

- Due to the rapid rate of change and the high rate of job displacement, there will be an ever increasing demand for retraining on a permanent lifelong basis.

- Retraining must be highly flexible, quickly delivered, and rapidly responsive to changing needs.

- Technology extends educational opportunity to the socially disadvantaged and the handicapped, whether physically, mentally, culturally, or geographically.

- Teachers and prospective teachers should be trained with the use of computers and not just in the use of computers.

- It is anticipated that high tech teacher stations may soon be replacing teachers' desks.

- Microwave, cable, high tech telephones, and fiber optics are greatly enhancing communications capabilities.

- The videodisc which is currently used in training by the military, business executives, corporate learning centers, and computer training firms is being hailed as a breakthrough in industrial technology of potentially revolutionary import to educators.

- The linking of technologies, such as the computer and the videodisc has resulted in the development of interactive videodiscs.

- Videodiscs can store entire vocabularies of a foreign language; full color renderings of museum collections; and rich, detailed images of places, occupations, or skills to be learned.

- Creating quality courseware is a far more difficult task than creating sophisticated hardware.

- There is still a shortage of quality, comprehensive, complex courseware packages.

- A major benefit from the development of Computer Assisted Instructional (CAI) materials is that it necessitates further refinement of subject matters.

- Due to the pirating of published software which was extremely expensive to develop and produce, many research laboratories and commercial firms are giving up the venture.

- Public agencies may need to be set up to produce educational courseware packages.

- Current applications of new information technologies are rarely based on proven research findings.

- There is a lack of communication between researchers and decision-makers concerning the application of information technologies.

- Comprehensive longitudinal studies should be conducted in order to determine the effect of the new technologies on learning.

- Computers enable students to focus on problem solving methods and on finding a range of solutions rather than just one right answer.

- The graphics capabilities of computers can be used by students to create art, to explore geometric forms, and to graph demographic information.

- The graphic capabilities of computers enable students to create, to see, and to manipulate images and then to use these images to discover patterns, trends, and varying perspectives.

- Use of computers by educators is primarily a grass roots movement growing out of the enthusiasm of parents, students, and teachers who are personal computer users.

- Computer languages such as Logo, graphic capabilities, and the computer's capacity to handle large and complicated calculations quickly provide children with the means and tools to learn and to think in a different way than children did just a few years ago.

- With the use of computers, topics can be taught much more often on a need-to-know basis, rather than according to some hierarchy or cognitive developmental framework.

- Children raised on television, computers, and video games are developing differing learning styles which will require a change in teachers' modes of communication and methods of instruction.

- The Second National Survey of Instructional Uses of Computers conducted in the Spring of 1985 by The Johns Hopkins University Center for Social Organization of Schools findings included the following:

  - Across three school levels, K-6, middle/junior high and high school, principals and primary computer using teachers saw two areas as most improved as a result of using computers:

    - student enthusiasm for the subjects for which they use computers

    - special opportunities for the academically gifted

  - Little improvement was observed in academic learning by above average students.

- Opportunities for learning disabled students were reported as more improved than actual learning by below average students.

- Outcomes with least perceived improvement due to computers were:

  - individualization of assignments

  - diagnoses of individual learning difficulties

  - learning in regular subjects by average and above average students

- The lack of reported effects on individualization, diagnoses, and academic learning may suggest that most computer-using teachers and school principals did not see CAI providing a major benefit to students, at least as of 1985. This may be due to the generally unsystematic way schools have implemented CAI programs.

- Schools with more computers reported more improvement in most outcomes.

- Six additional benefits of computers noted by teachers in order of decreasing frequency were:

  - help with logic, reasoning and problem solving

  - help for students with particular learning handicaps (e.g., learning disabilities, Chapter 1 low income backgrounds, limited-English-speaking minorities)

  - help for below average students needing remediation

  - value for students in gifted and talented programs and other advanced students

  - value for mathematics subjects and classes

  - improvement in self-confidence, a sense of accomplishment, and mastery over computer anxiety

- Schools are becoming serious about trying to use computers to reach important learning objectives.

- Computers are being used to a greater extent as evidenced by more competition for computer time, fewer days idle, more teacher borrowing.

- There is more computer activity directed to accomplishing academic goals and less for game playing.

- There is increased interest in having students use computers as a tool for improving their intellectual productivity as evidenced by the increased use of word processing.

- Some restructuring of arrangements for supervising students was evidenced by reported increased use of laboratory and library settings for learning.

  - The use of computers has increased cooperation among teachers and has resulted in greater investment in teacher preparation time, particularly for high ability students and at the high school level.

  - An improvement in the climate for learning through increased student motivation in subjects for which they use computers was the most pervasive perception among teachers.

- Computer adaptive testing which is being used with increased frequency allows highly individualized and diagnostic testing to take place.

RECOMMENDATION

It is imperative that the school system take the lead in preparing its students for the information age. This will entail a commitment of resources in terms of personnel, time, and money. It will also require a change from the concept of words printed on paper as the anchor of the curriculum and the medium by which information is delivered to one that recognizes, accepts, and uses electronic delivery of information.

It is recommended that:

TECHNOLOGY BE USED TO ENHANCE THE QUALITY, EFFECTIVENESS, AND EFFICIENCY OF INSTRUCTION

In order to implement the above recommendation, it is proposed that:

- A curriculum be designed and implemented to address the following critical skills of the information age to all students K-12:

  - the ability to analyze imagery

  - the ability to evaluate the quality of information

- All curricula be revised to incorporate computer assisted instruction (CAI) and computer adaptive testing (CAT), K-12

- Teachers be encouraged to move from the role of information givers to that of information facilitators

- Software be acquired and/or developed that encourages students to explore, discover, and use their imagination and creativity

- The schools and offices be networked with regional, state, and national education networks

- Intensive inservice be given to all staff in the areas of CAI, CAT, and instructional and information management through a variety of workshops

- An assessment be made to determine which educational functions can best be performed by using computer technology

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students will be able to analyze imagery.
- Students will be able to evaluate the quality of information.
- Students will make informed intelligent decisions based on electronically received information.
- Computer assisted instruction will be an integral part of all curricula.
- Testing will be individualized.
- Individual needs of students will be better met.
- Students will use imagination and creativity and be more willing to take risks in problem solving exercises.
- Students will become better problem solvers.
- The knowledge base available to individual schools, teachers, and students will be greatly enlarged.
- All staff will be able to use the available technology.
- Students will be prepared for the information age.
- Teachers' time will be spent doing those things that they can do more effectively than computers.

CONSIDERATION: MANAGEMENT

PRESENT STATUS

The use of computer technology for management purposes began 20 years ago with the purchase of a small unsophisticated computer. Today's IBM 4381 mainframe, along with its attached fixed functions and intelligent terminals, handles 1,144 production programs and 508 files of data and systems libraries ranging from employee data to financial funds accounting to student information on testing, attendance, scheduling, grade reporting, discipline, suspension, and special services.

In addition to the IBM mainframe, central offices, including Green Street and Pasadena, have over 140 computers of various makes and capabilities. While word processing is mainly handled on the 36-terminal NBI system, data processing and information management are primarily handled on the 69 IBM and 5 Victor 9000 terminals. A mixture of Xerox, Apples, Tandies, Commodores, VT220s and Hewlett Packards comprise the remaining 31 computers scattered throughout the central offices. Many computers have their own printers; however, others share printers.

A National Computer System (NCS) Century 70 Optical Scanner capable of reading penciled-in answer sheets called bubble sheets which are used to keep track of daily and monthly attendance, discipline referrals, scheduling, grading, and test results is located in the central office. Each high school has one Cognitronics Scanner which is used for monthly attendance, suspensions, discipline referrals, and daily attendance. They are hooked to the Victor 9000s and the discs are sent to the central office for processing.

The extent to which computers are used in the schools for administrative purposes depends on the interest and computer literacy of the individual administrator. All thirteen senior high schools and seven of the middle/junior high schools have Victor 9000s for administrative purposes.

The only computers in the elementary schools used for administrative purposes are those few which have been supplied by Parent Teacher Associations or from sources other than basic school instructional funds.

Staff development has been limited. Workshops have been conducted for assistant principals in scheduling and for new administrators, data processing clerks, and school secretaries in attendance and student discipline referrals.
After orientation, training for the central office clerical staff on the NBI system was accomplished primarily through the study and use of self-training manuals provided by NBI. In addition, an NBI representative came to the central office once a month to answer any questions and/or concerns arising from the use of the machines. Training for personnel in the Division of Management Information Systems has been provided through the following ways:

- interactive experiences with new software using self-tutorial computer assisted packages on IBM terminals
- enrollment in computer courses at Anne Arundel Community College made possible through released time and tuition reimbursement
- vendor conducted training on specific software
- specialized training in telecommunications and optical scanning conducted on site by company representatives

A Management Information Study was completed in 1984. This study made recommendations for using technology to improve efficiency and effectiveness in managing the school system.

An Application Transfer Study (ATS) was facilitated by IBM for the school system during the spring of 1987. As of this writing, the results of the study are not available.

RESEARCH

A review of the literature produced the following findings:

- The computer has made possible large and comprehensive data banks in various fields of knowledge.
- The computers used in conjunction with modern communication technologies make information accessible to remote sites.

- Systemwide and school-based administrative use of computers is increasing rapidly and includes the following:
  - attendance accounting
  - budgeting, purchasing, and accounting
  - grade analysis and reporting
  - guidance
  - evaluation and testing
  - information networks
  - instructional management
  - inventory and property records
  - planning
  - scheduling
  - data management
  - electronic spread sheet
  - media ordering, cataloging, and storage
- The number of schools joining regional or state computer networks is increasing.
- An increasing number of school systems are establishing on-line capabilities between school site computers and central office mainframes.
- Electronic mail has the greatest value for individuals who are working on shared tasks and who need to transmit information in the form of documents which can be retrieved by various parties.

RECOMMENDATION

If a school system is to operate with maximum efficiency, it is imperative that decision-makers have easy and rapid access to all relevant information.

It is recommended that:

> **A COMPREHENSIVE SYSTEMWIDE MANAGEMENT INFORMATION SYSTEM BE DEVELOPED AND BE MERGED UNDER A SINGLE TELECOMMUNICATION SYSTEM**

In order to implement the above recommendation, it is proposed that:

- All schools be on-line with the Central Office mainframe

- More computing power be provided at school and work sites so that uploading and downloading of information can be done at these locations
- Many of the administrative jobs which are now done by hand (e.g., purchase orders, guidance records, elementary attendance and grades) be computerized
- Hardware which is incompatible with the comprehensive management information system be phased out
- Hardware and software be secured to accommodate a comprehensive management information system
- An information center be established for the purpose of training users, answering questions, and helping to resolve problems for users
- Staff be reorganized to meet the needs of the system

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Schools will have immediate access to relevant information.
- Teachers' time on non-instructional duties will decrease.
- Administrators' time used for record keeping will decrease.
- Administrators will have immediate access to a variety of information needed for decision-making.
- Hardware and software necessary to accommodate a comprehensive management information system will be in place.
- Central office work stations will be compatible with each other and with the mainframe.

PROGRAM AREA: TRANSPORTATION

PRESENT STATUS

The Pupil Transportation Division is responsible for safe, efficient, adequate and economical pupil transportation. The work of the division includes:

- routing and scheduling school buses
- operating and maintaining system-owned buses in good condition
- providing safety and driver training programs

- observing road operations, including "on board" observations of drivers and pupils
- inspecting school buses
- building public relations
- maintaining records and submitting reports
- budgeting

The Board of Education has established walking distances to be no more than one-half mile for kindergarten pupils, one mile for elementary pupils, and one and one-half miles for secondary pupils. Exceptions are made for handicapped pupils and for those students who encounter hazardous walking conditions.

School buses currently transport 46,000 pupils of the total enrollment of 63,000 plus. The school system operates 379 contract service school bus routes through 62 contractors and 59 publicly-owned routes. Thirty-eight of the publicly-owned buses plus five spares are kept at the Waterford lot in Pasadena. The remainder are at drivers' homes. Garage facilities including a trailer for drivers and aides are also located in Pasadena. The publicly-owned buses serve only the special education programs.

By law, buses must be replaced no later than 12 years after the day they are put on route. Publicly-owned buses in this county are replaced every 8 to 10 years depending on mileage and mechanical and physical condition of the bus.

Over 125 new driver applicants are trained annually at the driver training classroom located at the Center for Applied Technology North.

During 1985-86, there were 105 accidents. The average number of accidents per year over the past several years has been 100. An accident is defined as any time when one vehicle hits another, when a vehicle hits an immovable object, or when any person is injured as a result of the actions of a driver.

The FY87 Budget for Pupil Transportation is over $13.2 million of which $2.86 million is for special education transportation.

As the educational programs have expanded and been enriched, transportation services have been extended in the following areas:

Kindergarten
Activity Buses for after school programs
Vocational Education
Gifted and Talented
Outdoor Education
Learning Center
Maryland Schools for the Blind and Deaf
Summer School

The transportation staff is as follows:

Supervisor	1
Assistant Supervisor	1
Specialist-in-transportation	5
Driver Trainers	3
Dispatcher	1
Mechanics	5
Secretary	1
Transportation Clerk I	1
Transportation Clerk II	1
Accounting Clerk	1
School Bus Drivers	59
School Bus Aide	60
TOTAL	139

The following goals and objectives have been formulated for the Transportation Division:

- continuation of the psycho-physical testing program for new as well as veteran drivers
- continuation of "on board" observations of drivers
- expansion of retraining or advanced training program for veteran drivers
- assistance for the Instruction Division in establishing monthly school bus safety programs for grades K-12
- improvement of school bus accident investigation process
- implementation of computer assisted routing

RESEARCH

A review of the literature produced the following findings:

- There will be an increase in student enrollment over the next decade.
- The anticipated expansion of kindergarten from half day to full day, coupled with the implementation of a pre-school program for four-year-olds will necessitate an increase in transportation services.
- Computer assisted routing will be used.
- Computer assistance will be employed in the maintenance of vehicles resulting in faster and more efficient record keeping, improved preventive maintenance, cost accounting, and inventory controls.
- School facilities will have direct communication via cable or satellite TV and thus emergency announcements can be simultaneously transmitted to each.

- Classroom training for school bus drivers should be computerized. This will allow more time for the driver trainers to spend on behind-the-wheel training of new drivers and behind-the-wheel observations of veteran drivers.

- Although no states have mandated that seatbelts be installed on school buses, some local school districts are beginning to install them.

- A safety device being installed on school buses is the stop arm. These octagonal devices with two flashing lights swing out at motorist eye level when the bus is taking on or discharging passengers.

- Fire retardant and vandal proof materials are being developed for use in school bus seat covers.

RECOMMENDATION

School enrollment in the county is projected to increase in the coming years. Because there is no mass transit system available or projected, the use of public transportation will not be an answer to the need for an increase in the number of buses. Therefore, it will continue to be the system's responsibility to provide safe and efficient student transportation.

It is recommended that:

> **TRANSPORTATION BE PROVIDED FOR ALL ELIGIBLE STUDENTS IN A SAFE AND EFFICIENT MANNER**

In order to implement the above recommendation, it is proposed that:

- Planning begin for the efficient use of additional contract and publicly-owned buses over the next decade (It is projected that by 1995 there will be 415 buses under contract and 65 publicly-owned buses on route. This is based on population growth only.)

- Aides be provided on pre-school buses for four-year-olds

- K-12 bus safety programs be developed and implemented

- Computer assisted routing be implemented for both the regular K-12 buses and the publicly-owned special education buses

- Computer software be purchased and implemented to assist in the preventive maintenance and regular maintenance programs for the publicly-owned fleet

- A centralized transportation facility be established to provide for maintenance and security of equipment

- The driver training and aide training programs be enhanced by incorporating computer modules for the various classroom topics

- Telecommunications networks be used to provide instant and simultaneous communication relative to emergency school closings

- Eligibility standards be constantly assessed and coommunicated to the communities being served

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- School bus routes will be more efficient, thus providing an expanded service to meet the needs of a growing pupil population and new program requirements.

- School bus maintenance and corresponding record keeping will be enhanced by computer software.

- Driver and aide training will be greatly expanded and improved by the use of computer modules.

- Distant video communication in all schools will expedite the dissemination of emergency information.

- Safety will increase.

PROGRAM AREA: VOCATIONAL EDUCATION
CONSIDERATION: BUSINESS EDUCATION/DATA PROCESSING

PRESENT STATUS

The Business Education/Data Processing Program is the component of vocational education which provides all students the opportunity to acquire knowledge and skills needed for beginning employment and for advancement in a business career. In addition, selected business courses are of benefit to those students who are pursuing a post secondary education or who are entering other occupations. The two broad objectives in business education/data processing are:

- to help all students understand those phases of business that affect every person

- to offer specialized instruction for those preparing for business occupations

The curriculum available in the comprehensive high schools includes broad sequences of courses. Students may elect the secretarial, clerical, accounting, or data processing area as a program of study. Ninth grade students who attend a grade 9-12 senior high school may begin a business program by taking Introduction to Business and Typewriting I. These courses are recommended for all business students.

The following series of courses in the various areas are recommended for business education/data processing students culminating with cooperative work experience in grade 12. Students may begin business programs as late as grade 11. They may not, however, be eligible for the work experience.

Recommended Sequence of Courses
Business Education/Data Processing
(Senior High School Offerings)*

Secretarial	Clerical	Accounting	Data Processing
Intro. to Bus. Typewriting I Bus. Math. Typewriting II	Intro. to Bus. Typewriting I Bus. Math. Typewriting II	Intro. to Bus Typewriting I Bus. Math. Intro. to Business Computers	Intro. to Bus. Typewriting I Bus. Math Intro. to Business Computers
Shorthand I/ Transcription I	Recordkeeping or Accounting	Acct. Princ. I	Business Computers I
Acct. Prin. I	Office Training	Typewriting II	Bus. Comp. II or Adv. Bus. Comp.
Shorthand II/ Transcription II Office Training Cooperative Office Education Cooperative Office Work Experience	Cooperative Office Education Cooperative Office Work Experience	Acct. Princ. II Office Training Cooperative Office Education Cooperative Office Work Experience	Business Computer Work Experience Cooperative Office Work Experience

*One of the junior high schools, Severn River, offers Typewriting classes.

Other courses available to business education/data processing students are Business Economics, Machine Transcription, and Business Law. Students in other curricula often elect business education subjects. Courses popular with these students are Typewriting I, Notehand-stenospeed, Business Mathematics, and Introduction to Business Computers.

The two cooperative work experience programs available for twelfth grade business students are:

- Cooperative Office Education Work Experience
- Business Computers Work Experience

Students enrolled in the programs attend their home schools part of the school day and work the other part of the day, for a minimum of 15 hours per week. Three credits are awarded for successful cooperative work experience. Students are paid at least the minimum wage and concurrently enroll in a two-semester, one-credit related course that must be passed in order for the student to earn credit for cooperative work experience. The related course is taught by the work experience teacher coordinator who is also responsible for locating students' work sites and supervising their work experience. Seniors who elect not to participate in cooperative work experience may elect other courses at their home school.

Also, the program has some very special features. Students in two special education centers are introduced to business skills as a program offering. A special nine-week mobile program has been designed to give ninth grade students at Wiley

H. Bates, Annapolis, Marley, and Corkran Junior High Schools the opportunity to explore careers in a variety of occupational areas in the business field. Plans are for this program to be deactivated after the 1986-87 school year. Students at Severn River Junior High School can elect to take Typewriting, and the feasibility of making Typewriting/Keyboarding available to more students in grade nine at these junior high schools is presently being investigated. The Center of Applied Technology North, with its sophisticated data processing equipment, provides an Advanced Business Computers class for those students who elect not to participate in the Business Computers Work Experience Program in their senior year.

One of the goals of the Business Education/Data Processing Program is to provide experiences for all students on equipment that parallels that used in the business world. Each year it becomes more of a challenge to replace and secure additional equipment in the thirteen comprehensive senior high schools, one vocational-technical education center, two special education facilities, one mobile unit, and one junior high school in an effort to reach this goal.

Some of the equipment available for instruction includes:

- electric and electronic typewriters
- keypunch machines
- mainframe and computer terminals
- microcomputers
- printers
- dictating and trancribing machines
- court reporting machines and steno lab stations
- regular and electronic calculators
- reprographics equipment
- recorder/players
- various media equipment

A chapter of Future Business Leaders of America (FBLA), a student organization, is an integral part of the business program in ten of the thirteen comprehensive senior high schools. Participation in this organization provides students the opportunity to:

- learn about business and what will be expected of them in the work place
- meet representatives of the business community and learn to talk confidently with a potential employer
- test their business skills at state and national competitions
- attend leadership training conferences with students from across the country

In addition to the regular school day program, some business courses are offered in the summer school, evening school, and adult education programs at various centers throughout the county.

Curriculum guides are available for 22 of the 23 current offerings and they will be continuously revised to keep abreast of current trends. A guide for Advanced Business Computers is yet to be developed. A Business Education/Data Processing Advisory Council has been formed specifically to provide direction for the program.

While all materials of instruction are not the most current, the recent editions of basic texts, supplemental, and support materials are systematically reviewed, approved and purchased as funds are available.

Staff development is accomplished through nationally advertised seminars, county workshops, inservice training sessions, state sponsored workshops, as well as through cooperative efforts with the Anne Arundel Community College. Examples of the staff development opportunities for business education/data processing teachers for the 1985-86 school year were:

- a county level workshop for beginners on the use of the Hewlett Packard terminal
- an advanced county level workshop on the use of the Hewlett Packard terminal
- a state sponsored workshop on the use of IBM computer networking in the instructional process
- a state sponsored workshop on integrating microcomputers into the business education curriculum
- a Prince George's County sponsored workshop on integrating microcomputers into accounting instruction
- an inservice program offered by Anne Arundel Community College on microcomputer application packages

RESEARCH

A review of the literature produced the following findings:

- Deliberate cooperation between schools and the business world will be imperative for the survival of both institutions. Working together will provide direction.
- Business; federal, state and local government, and institutions of higher learning must plan cooperatively to provide the highest quality of education with the funds available.
- Teachers who have experience working in business bring high levels of skills and knowledge to business education classes.

- Schools that focus on the development and reinforcement of good habits, shared values, and high standards of behavior produce graduates who are successful at work and in institutions of higher learning.

- Vocational education, a necessary part of the overall educational process, provides immediate application and relevance for learning. Schools should combine technology with academics to produce students who can adapt to a wide range of high-tech jobs in their lifetime.

- All students need a knowledge of basic business principles.

- Automation will lead to the paperless office where electronic storage and retrieval of information will replace the traditional typing, proofreading, and retyping.

- The textbook, as we now know it, will be replaced by computers, software, and consumable materials for students.

- With the proliferation of microprocessors, computer literacy for everyone is essential.

- Because the typewriter keyboard is used for input into computerized equipment, the sight method of keyboarding skills should be taught to everyone.

- Students should be trained for groups of career-related positions rather than for specific jobs.

- Major curriculum revisions are needed in business education because many graduates will be working in automated business environments.

- In the business education classroom, there should be a move away from high-level proficiency on technical machine operations to the teaching of concepts and applications.

- Basic training for all business students should include thinking conceptually, solving problems, adapting to change, and developing effective human resource capabilities.

- Teacher certification and program content for business education teachers should be revised in light of the needs of the electronic office.

- Future business education teachers and students will need to learn to use the microprocessor as a communications tool.

RECOMMENDATION

Research indicates that the skills needed by office personnel of the future will be influenced by the increased use of newly developed and continually changing office technology. Not only is it imperative that business education curriculum remain current, but business education teachers also must be aware of changing office practices and procedures.

It is recommended that:

> **THE BUSINESS EDUCATION/DATA PROCESSING PROGRAM CONTINUE TO BE MODIFIED IN ORDER TO PREPARE BUSINESS STUDENTS FOR THE CHANGING OCCUPATIONAL REQUIREMENTS, AS WELL AS TO PREPARE OTHER STUDENTS TO PARTICIPATE IN THE BUSINESS WORLD**

In implementing the above recommendation, it is proposed that:

- A relationship with the business community be established and maintained that will lead to:
  - a program designed to meet business, community, and personal needs
  - the active support of the program by the business world
- The present program be modernized by:
  - updating equipment to reflect what is being used in business
  - emphasizing appropriate work habits and attitudes
  - introducing new course descriptions that reflect current business practice, college prerequisites, and entry level skills
  - renaming existing subjects
  - expanding the concept of data processing and renaming it information processing
  - exploring new instructional strategies
  - replacing typewriters with computers and teaching typing from the computer keyboard.
- Business Education concepts be integrated throughout the curriculum, K-12
- Articulation be regularly carried on with the business community in order to determine entry level skills
- A community and business needs/expectation survey be developed and conducted
- Appropriate cooperative work experience programs be emphasized and provided
- Chapters of FBLA be established at all comprehensive senior high schools
- Current program offerings available to ninth graders at the senior high school level be accessible to ninth grade students in all junior high schools in the county
- Keyboarding experiences be provided for all students, K-12

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- A greater number of students will become skilled at using modern business equipment.
- Students will have greater opportunities for employment.
- Students will demonstrate greater proficiency in those skills required to survive in the modern office (e.g., communications and problem solving).
- Teachers will possess the knowledge and skills that reflect contemporary business practices.
- Students will have a better understanding of business principles.
- Personnel needs of businesses will be better met.

CONSIDERATION: HOME ECONOMICS

PRESENT STATUS

Home economics, a program within the Vocational-Technical Education Division offered in all the secondary schools, prepares students for the work of the home and family. It emphasizes total family well-being and draws upon knowledge from the arts and sciences to help families prevent or solve the practical problems of daily life. Because the work of the home and family is affected by social, economic and technological change, there is constant need to find new ways of seeking solutions to the problems of an increasingly complex society.

Knowledge and skills that are fundamental to a well-ordered, quality home and family life are transferable to many home economics related careers (e.g., dietitian, early childhood educator, family financial counselor). A supplementary goal of the home economics program is, therefore, to make students aware of these relationships and prepare them for paid employment in home economics occupations.

The subject matter areas of home economics include child and family development, clothing and textiles, food and nutrition, consumer education and resource management, and housing. The essential components in the work of the family are (1) providing for personal and family development at the various stages of life and for establishing satisfying personal and family relationships, (2) caring for and nurturing children, (3) providing nutritious food for self and family members, (4) selecting and maintaining housing and living environments for self and others, (5) providing and caring for personal and family clothing, and (6) managing financial and other resources. There is no formalized scope and sequence chart for the home economics program.

Twelve-week exploratory programs are provided for students in grades six, seven, and eight in the middle/junior high schools. The curriculum, published in 1980, prescribes three, four-week units at each grade level. The food and nutrition, and clothing and textiles units are implemented in all schools at all three grade levels. Sometimes the child and family development unit in grades six and seven and the housing unit in grade 8 are omitted or have a lesser amount of time devoted to them.

Revision of the middle school curriculum is currently in progress. The home economics staff is studying trends and examining program philosophy with the goal of providing content relevant to the educational and developmental needs of middle school students and deleting that which is considered non-essential. Feedback on the draft document has been sought from middle school administrators and teachers. Responses range from enthusiastic to apprehensive. Specific concerns are related to the adequacy of human and non-human resources, the appropriateness and organization of content, and the nature of suggested activities. The existing and proposed changes in program emphasis are shown in the chart below.

Middle School Curriculum

Subject Areas	Current Number of Weeks by Grade Level			Proposed Number of Weeks by Grade Level		
	6	7	8	6	7	8
Child and Family Development	4	4		4		6
Clothing and Textiles	4	4	4	4	6	
Food and Nutrition	4	4	4	4		6
Consumer Education/ Management of Resources						6
Housing			4			
Total	12	12	12	12	12	12

In grades nine through twelve the home economics program is offered on an elective basis. Credits earned through completion of home economics courses may be applied towards the Maryland State Department of Education practical arts requirement for graduation. Fourteen courses span the five subject matter areas of child and family development, clothing and textiles, food and nutrition, consumer education/management of resources, and housing. A curriculum guide for all courses was published in 1980.

The courses by subject areas are listed below.

Semester Elective Courses, Grades 9-12

Subject Areas	Courses
Child and Family Development:	Child Development I Child Development II Child Development III

Clothing and Textiles:	Clothing I Clothing II Clothing III
Food and Nutrition:	Foods I Foods II Foods III
Consumer Education/Management of Resources:	Home and Personal Management
Housing:	Housing I Housing II

Home Economics Seminar - for students wishing more specialization in any area

Home Economics Independent Study - students study any topic on their own

Home economics programs are classified as Consumer and Homemaking Programs or Occupational Programs. All home economics courses in the school system are in the consumer and homemaking category. They are offered in the eight junior and thirteen senior high schools in the comprehensive setting. Although some courses prepare students for employment (e.g., Child Development and Fashion Merchandising), none of them meet the federal guidelines to be considered Occupational Programs.

Curriculum revision at the high school level began in 1983 with the Home and Personal Management course. It included content update and a new unit to teach the application of the microcomputer in the home. After a presentation of a revised draft of the curriculum and resources to department chairpersons in the fall of 1984, the number of schools scheduling the course increased from three to six in 1985-86. A 45-hour workshop was conducted by a certified financial planner during the fall of 1985 to provide professional development and support for teachers implementing the course.

After an assessment of the strengths and weaknesses of the Child and Family Development strand of the curriculum and in response to societal concerns for the increasing number of adolescent parents, a curriculum committee was convened during the summer of 1985 to write a new course, Decisions for Responsible Parenthood. The course is designed to provide students the knowledge, attitude and skills essential to effective parenting decisions and a critical awareness of the relationship between family well-being and the well-being of self and society. The course will be offered as a seminar at one senior high school in the fall of 1987.

Strategies are being considered to provide relevant programs for today's teens. A two year program in Fashion Merchandising which draws upon the resources of three vocational areas, home economics, marketing, and cooperative work experience, illustrates how programs can be re-conceptualized to meet the needs and interest of students. After one year of fashion merchandising study in the home economics department, students have the option of continuing their marketing education in the level two marketing course. They also have the option of enrolling in the work experience programs to gain practical experience in the retail business. The course in fashion merchandising which currently comes under the Home Economics Seminar Course is scheduled in four high schools with a total enrollment of over 100 students. These efforts in curriculum revision are projected as the first steps of a long range plan.

Implementation of the middle school home economics program is not consistent in all schools. Enrollment in home economics at the middle school level is affected by grade/school configuration and the six period school day. Sixth graders housed in elementary schools do not have home economics available to them. In some cases 7th and 8th graders may opt out of home economics and take a foreign language in its place. During 1985-86, 42% of 6th grade students, 98% of 7th grade students, and 90% of 8th grade students were enrolled in home economics programs.

Course offerings at the high school level are affected by several factors (e.g., teacher preference, core designation, administrative decision, student interest, and scheduling concerns). A comprehensive program with courses in each of the five program areas is desirable. However, comprehensive offerings are difficult, if not impossible, to schedule because of the size of most departments. Course offerings, courses scheduled, and enrollments for the past two years are charted below.

Junior/Senior High School Course Offerings/Enrollment

Eight Junior High Schools

Courses		#Offered Course for 85-86	# Scheduled Course 85-86	# Enrolled 1984-85	# Enrolled 1985-86
Foods I		8	8	658	836
Clothing I		8	5	195	151
			Thirteen Senior High Schools		
Child Development	I	13	13	1059	934
	II	13	13	386	437
	III	9	9	98	120
Clothing	I	13	11	390	255
	II	13	11	148	94
	III	9	8	58	25
Foods	I	13	13	1409	1318
	II	13	13	598	636
	III	13	13	171	183
Home and Personal Management		9	6	116	159
Housing	I	8	4	47	53
	II	2	0	0	0
Home Economics Seminar		4	3		91
Independent Study		7	5		35
			Total	4480	4340

The foods and child development courses continue to attract the largest number of students, comprising 49% and 34% respectively of the total enrollment for all students in home economics classes. Classes with low enrollments continue to be offered in 11 of the 13 senior high schools by combining courses into one class section. Combined classes facilitate continuation of programs, but increase teacher preparation time for the classes.

The graduation requirement of one practical arts credit may affect enrollment in home economics, however, it is not possible to assess the full impact of this requirement at the present time.

Home economics instruction is conducted by 61 full time and four part time certified home economics teachers. (During 1985-86, three home economics courses were taught by teachers certificated in other content areas.) Eighty-six percent of the home economics staff hold an Advanced Professional Certificate.

The time allotted for staff development inservice training is two full days for department chairpersons. In addition, two and one-half hours prior to the opening of school in the fall is set aside for the program coordinator to meet with the home economics teachers for program administration and staff development.

While 27 of the 30 secondary schools have received training and support to improve their teaching through the Instructional Leadership Project (ILP), only 12 home economics department chairpersons/lead teachers have been involved in any activities of the ILP.

Current information relevant to the home economics profession, home economics content, and teaching strategies is provided to each department in eight publications disseminated monthly through the home economics office. During the past four years, teachers have participated in workshops in the use of the computer as a teaching and management tool, in the organization and administration of a pre-school laboratory, and in the enhancement of the personal finance component of the management course. Regional meetings sponsored by the Maryland State Department of Education (MSDE) and Maryland Home Economics Association have been conducted annually since 1984 for home economics educators. Specific training to assist teachers in the implementation of the youth organization Future Homemakers of America has also been sponsored by MSDE.

The Home Economics Association of Anne Arundel County in conjunction with the Coordinator of Home Economics has scheduled a staff development weekend get-away at the Arlington Echo Outdoor Education facility annually since 1983. Even though opportunities for staff development are available, none of these delivery systems is effective in reaching all of the personnel who need training.

The goal of Future Homemakers of America is to help youth assume their roles in society through home economics education in areas of personal growth, family life, vocational preparation, and community involvement. Historically there has been little involvement with FHA in the county. At the present time no schools report affiliated FHA chapters. Two teachers participated in FHA Advisor Training during the 1985-86 school year.

Teachers have sponsored home economics clubs which meet after school or during activity periods. In 1985-86 five schools reported extracurricular activities of this nature. These activities provide opportunities for the application of skills acquired in home economics. A total of 186 students were involved in home economics clubs during this school year.

Federal funds are provided for home economics outreach programs to traditionally underserved populations (e.g. elderly, disadvantaged, and/or handicapped single parents, out of school youth, the incarcerated, individuals with limited English proficiency, and teen parents). Recently two grants were received for vocational training and support services for adolescent single parents. A teacher was hired in January 1986 as project facilitator for the two grants, the Adolescent Single Parent Project and the Home Economics Outreach Project. Two guidance counselors were hired on a part time basis for three months to provide counseling, assessment, and training for adolescent single parents at Annapolis Junior High School, Bates Junior High School, and Annapolis Senior High School. Workshops were conducted at these three sites to provide direction and support for teen parents.

The Home Economics Outreach Project consisted of a four-day Teen Parent Camp at the Arlington Echo outdoor education facility. The camp was staffed by two home economics educators, child development students from senior high schools, and volunteers from community agencies. Pregnant and parenting teens received transportation and child care services and instruction in sexuality, child development, nutrition, and management of resources. An important achievement in addition to the services provided to the pregnant and parenting teens was the development of a network between the teens and the Interagency Committee on Teenage Parenting. Professionals from ten agencies cooperated in the implementation of this program.

RESEARCH

A review of the literature produced the following findings:

- Demographic, cultural, economic, and social changes such as the increase in the number of teen pregnancies, teen suicides, single parent families, two wage earner families; the increasing demand for highly skilled workers; and the decreasing demand for non-skilled workers will have a profound effect on family life.

- Historical and emerging views of the home economics curriculum have been identified by home economics scholars. Among the six perspectives, two are most relevant with respect to the societal trends and the educational and developmental needs of students, the family development view and the household management view. These two views have an intellectual focus which explicitly identifies mental skills and processes which are high priorities in the educational system and in tomorrow's society. Other less relevant perspectives view home economics as education for women, manual training, application of science for the purpose of improving the environment, and intervention for disadvantaged youth.

- Technical goals are insufficient for human service oriented fields like home economics education. Such fields are concerned with bringing about change in people and, thus, have a moral reasoning component.

- A problem confronting society is how to strike a balance between the demands of technology and the demands of human nature.

- Across the nation there is a movement toward reconceptualizing home economics education with a focus on self-formation and critical thinking.

- There is little evidence to suggest that concepts will be available to students when they need to use them if the concepts are learned generically, apart from their relevant content. Curriculum should be arranged so that multiple-context learning of concepts happens intentionally.

- There is a direct connection between work and family life. Conflicts and problems which surface in one area affect the other.

- Contemporary education should prepare students for a nonpredictable future and lifelong learning. Educators must teach and reward those skills and attitudes that prepare students to adapt to change. Career/vocational education should be an integral part of the educational experience.

- The need for lifelong learning and retraining has implications for services to the adult population. Concern for issues facing families and for establishing the means to help alleviate these problems can focus on the adult, as well as the student population.

RECOMMENDATION

The revision of home economics curriculum in the 1980s requires more than attention to content update and the addition of new teaching strategies and resources. It requires a comprehensive understanding of the forces changing society and the emerging educational and developmental needs of students. It requires knowledge from an historical perspective of the divergent views of home economics education and the development of a rationale for program direction. Curriculum change requires sensitivity to the developmental level of the professional staff and the implementation of staff development activities that challenge teachers to reach toward the future.

It is recommended that:

> **THE FOCUS OF THE HOME ECONOMICS CURRICULUM BE ON FAMILY DEVELOPMENT AND THE MANAGEMENT OF RESOURCES**

In order to implement the above recommendation, it is proposed that:

- Work by the staff on Maryland's Home Economics Conceptual Guide Project leading to the completion of a conceptual framework in 1988 be continued

- A rationale for home economics education and a conceptual framework and scope and sequence be developed that clearly identifies content and processes

- The middle school curriculum be completed and based on a sound rationale

- The effect that the presence of special need students has in the classroom be taken into consideration when determining class size so that program implementation is facilitated

- Continuity of program be established for all schools

- An advisory committee of high school teachers be convened to reconceptualize and develop course offerings

- Linkages be established with other programs in the school system, community college, business, and the community in order to introduce students to careers and develop cooperative work experience programs in home economics related careers

- Outreach programs be developed which will meet the needs of the adult population

- Enrollment in home economics courses be opened to adults

- Future Homemakers of America chapters be established in each secondary school

- A comprehensive staff development program for all home economics teachers be planned and implemented

- Each home economics department be equipped with technology commensurate with the needs of the family in the future

- The emphasis on family be increased and expanded to include coping with sociological change, preparation for parenting responsibilities, care of the elderly and the handicapped, management of time and money, and personal and family development/relationships

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Curriculum will be relevant to the education and development needs of students and will prepare them for the dynamic challenges of family life.

- Students will have the necessary attitudes, skills, and knowledge to be effective parents and household managers.

- Future Homemakers of America chapters will increase, thus more students will improve their self-concepts, develop leadership skills, and be involved in productive activities after school hours.

- Home economics programs will serve the adult population.

- The career options for students will be increased in home economics related occupations.

CONSIDERATION: INDUSTRIAL ARTS

PRESENT STATUS

Industrial Arts is a comprehensive action-based program concerned with the evolution, utilization, and significance of technical means and with the organization, personnel, systems, techniques, resources, and products of industry. An analysis of the social/cultural impact of the above is a vital concern of the program. The distinctive character of the industrial arts lab provides opportunities for students to experience concrete application and development of cognitive learning coupled with extensive psychomotor activities.

Industrial Arts is a program within the Vocational-Technical Education Division. It is a school-based program designed to provide youth with knowledge, skills, and attitudes to intelligently create and control their environment. On the other hand, vocational education is both home-school, special-centered, and field-based. Traditionally this program has stressed providing students with entry-level occupational skills.

Industrial Arts is formally introduced into the curriculum at the middle/junior high school level where all students are required to take 12 weeks of exploratory industrial arts in grades 6, 7, and 8 on a daily basis. Students attending K-6 elementary schools and 7-9 junior high schools miss one year of the basic industrial arts curriculum sequence. Units of study include industry and production (plastics, woods and metals), and communications (graphic arts, drafting and photography).

The curriculum is being implemented in the middle schools. Two junior high schools lack a darkroom and laboratory to implement the photography component of communications. One junior/senior high school lacks the equipment to implement the plastics phase of the industry and production component. Students not having the plastics experience have no further opportunity to take this course. However, students not afforded the opportunity to explore graphic arts may elect this course in grades 9-12 in certain high schools.

Industrial Arts at the senior high school level is offered on an elective basis. Credits earned through completion of industrial arts courses may be applied towards the Maryland State Department of Education practical arts requirement for graduation. All courses are one semester in length with the exception of architecture which may be offered for a full year. Course offerings cover the broad areas of communication, energy and transportation, and industry and production. The courses offered are in the areas of graphic arts, power and energy technology, automotive technology, woodworking, metalworking, drafting/architecture, and electricity and electronics. Curriculum guides are available for all courses except level three in woodworking and metalworking.

Laboratories are constructed and equipped on the basis of a class size of 24. This class size is based upon consideration for hands-on activity experiences for all pupils and the provision of a safe learning environment. Current staffing practices sometimes produce classes in excess of the recommended class size.

The following table shows the number of senior high school students (grades 9-12) who were enrolled in elective industrial arts courses for the 1985-86 school year.

High School Students (Grades 9-12)
Enrolled in Industrial Arts Courses
September 1985

	No. Enrolled	Total No. of Students Grades 9-12
Male	5,398	9,757
Female	357	9,216
Total	5,755	18,973

The enrollment figures for 1985 compared with 1979 show a pupil population increase of 860 enrolled in 9-12 industrial arts courses against a decline in high school population of 5,256.

Eighty-three teachers were assigned to industrial arts for the school year 1985-86. This represents a decline of 12 teachers since 1979. Of these, all were certificated in industrial arts, while two were also certificated in special education. One out-of-field teacher was assigned to cover a junior high school class. Industrial arts teachers are sometimes given an out-of-field assignment. Partial positions of .6 or less sometimes go unfilled, and then the students are reassigned to other program areas for which teachers are available.

Efforts began in the fall of 1983 to explore ways in which new technologies could be brought into the program. A pilot program in computer aided drafting (CAD) was instituted at Annapolis Senior High School. Hardware and software for this program have now been provided for all senior high schools. The course guides for all levels of drafting and architecture were revised in the summer of 1985 to reflect the integration of this new technology.

A pilot course titled "The World of Construction" offered at Annapolis and Marley Junior High Schools has been dropped. It touched upon the areas of carpentry, plumbing, electricity, sheetmetal, and masonry--many of the areas covered by the Fundamentals Program at the vocational-technical centers.

Staff development is accomplished through workshops. These workshops traditionally have not been well attended. Because of this lack of participation, many industrial arts teachers have not kept pace with the current knowledge and techniques in the field. As a result, a large portion of the staff needs technical updating. Individual cases requiring the upgrading of teacher expertise are handled through specific plans of action.

The addition of a repair technician in 1984 has enhanced the operation of the program through direct services to classroom teachers. Replacement of worn-out and technically outdated equipment continues to be a major concern. Annual budgets traditionally have not provided the funds needed to keep up with equipment replacement.

RESEARCH

A review of the literature produced the following findings:

- Schools should provide every student with an opportunity to gain insights into and understandings of the technological nature of the American culture.

- Technology education is a basic and fundamental study for all persons, regardless of education or career goal.

- The industrial arts curriculum should have relevant content with hands-on reinforcement. It should be sequential and lead to broader understandings which provide a broad, integrated view of the industrial/technical aspects of American society.

- If understanding is a goal to be achieved in the study of technology and technological innovation (past or present), there must be a strong linkage with mathematics, science, society, and the environment.

- The development of craft related skills should be de-emphasized, while skills which promote an understanding of systems approaches to problem solving should be expanded and enhanced.

- Exploratory courses should offer first-hand experiences in a variety of simulated occupational situations in order to develop the interests and capabilities of students and to contribute to their guidance in occupational selection or plans for further education.

RECOMMENDATION

Traditionally, the aim of industrial arts has been to acquaint students with industry and technology, not to provide job entry-level skills. Recent literature indicates a need for the industrial arts curriculum to prepare students to be more sensitive to the increasing complexity of a technological society and to the need for greater occupational information in order to understand and properly interpret the role of industry in an information society. Industry-based shop programs should be substantially modified because they tend to focus upon specific occupational skills to the exclusion of more comprehensive study of industry as a whole.

It is recommended that:

> **THE INDUSTRIAL ARTS CURRICULUM BE MODIFIED TO PROVIDE INTRODUCTORY EXPLORATORY EXPERIENCES, CAREER EXPLORATION OPPORTUNITIES, AND DEVELOPMENT OF A PROGRAM THAT WILL ACQUAINT STUDENTS WITH FUNDAMENTAL KNOWLEDGE ABOUT THE DEVELOPMENT OF TECHNOLOGY AND ITS EFFECT ON PEOPLE, THE ENVIRONMENT, AND CULTURE**

In order to implement the above recommendation, it is proposed that:

- Introductory exploratory industrial arts programs for all students in grades 6-8 be implemented as designed, with updated revisions to reflect the latest technologies and industries

- Courses be offered at the senior high level which prepare students to deal with the evolution, utilization and significance of technical means; with the organization, personnel, systems, techniques and resources of industry; and with products and their social/cultural impact

- The curriculum be modified to eliminate the heavy emphasis on the artisan (craftsmanship) approach to the study of processes of industry

- Facilities be updated and properly equipped in order to implement the communications and plastics components in the middle school curriculum

- Facilities be upgraded, necessary equipment and materials be purchased, current course content and presentation sequence be altered to accommodate the study of new technologies in the courses of woodworking, metalworking, drafting, graphic arts, electronics, and power and energy technology

- The conceptual thought be changed to reflect progressive technology with the ability to offer instruction in computers, robotics, forms of energy, and other experiences that apply technology to solving major problems that face society

- The industrial arts curriculum be redesigned at the high school level by:

  - reducing vocational craftsmanship emphasis and skill development practices through the elimination of the level three courses in woodworking and metalworking

  - altering scheduling practices to allow for the offering of Power and Energy Technology, and Electronics to be given for two semesters (one full year)

  - developing and implementing pre-technical courses in:

    - Production Systems - A course that highlights students' technology education. This course provides students with an understanding of how production is done. Students organize a corporation to produce selected products. The use of robotics is an integral part of this course.

    - Technological Systems - An advanced one year course that involves research-based activities concerning communication, energy use, production, and transportation. This is a class that also analyzes the social, environmental, and economic aspects of technology.

  - developing as curricular goals for implementation in all courses the provision for:

    - integration of mathematics, science, communications, and social sciences into industrial arts/technology education activities

    - maximum use of community resources

    - extensive use of multi-level reading materials

    - extensive use of inquiry, problem solving, and experimentation in arriving at solutions and procedures

    - effective and meaningful use of role-playing by the student as a technique for greater direction

    - student activities and experiences that will encourage a diversity of the individual's special abilities and permit a greater display of talents

- Intensive staff development be provided to update the knowledge and skills of all teachers

- A name change be implemented for the program from Industrial Arts Education to Industrial Arts/Technology Education

OUTCOMES

With the adoption of this recommendation, the following outcomes are projected:

- Students in grades 6-8 will complete exploratory experiences in industrial arts/technology education.

- Students will have insight into and understanding of the technological society.

- Students will utilize experiences and information to make career choices.

- Students will be prepared for entry into specialized technical training and/or advanced professional programs in technology.

- Students will reinforce basic skills and interrelate the content of technology with other school subjects.

- Students will develop problem solving and decision-making abilities involving human resources, materials, processes, and technological systems.

CONSIDERATION: TRADE AND INDUSTRY

PRESENT STATUS:

Trade and industry programs are designed to prepare students for full time work immediately following graduation or for post-secondary education. Courses in trade and industry are available only at the Center of Applied Technology North, Center of Applied Technology South, and Southern Senior High School. Students enrolled in trade and industry programs attend their home school for a portion of the day and are bused to the centers for instruction in trade and industry programs.

Students may begin exploring trade and industry programs in the ninth grade by taking the fundamentals programs. This program is offered at the Center of Applied Technology North and Center of Applied Technology South both during regular school hours and after school. The purpose of the program is to give students an opportunity to sample procedures and tools of several trade areas. Students are bused to the center from their respective schools. Seventy-five minutes of daily instruction are given in a trade area for six weeks. The students explore three different crafts per semester. Admission arrangements are flexible and allow students to pursue the program on a half year or on a full year basis. Instead of grades, evaluations of satisfactory or unsatisfactory are given. One and a half credits are granted for successful completion of the year-long program and three quarters of a credit for successful completion of a half year. Approximately 50% of the students who complete the fundamentals program enroll in vocational courses in the tenth grade.

Trade and industry courses are planned for a three-year sequence that encourages students to begin training in specific trade areas in the tenth grade. The following amount of daily instruction, depending upon the program, is provided: tenth grade - between 88 and 150 minutes; eleventh grade - between 150 and 200 minutes; and twelfth grade - either 150 minutes or participation in cooperative work experience.

Students apply for trade and industry programs prior to completion of ninth grade. Applications are reviewed by the administrative and guidance personnel at the vocational-technical centers. Students list by priority the three programs they would like to pursue. An effort is made to place students in the program of their choice; however, when the number of applicants exceeds the enrollment capabilities, the following criterion are used: attendance; recommendation by the home economics or industrial arts teacher; reading and mathematics ability; and consideration of the student mix as it applies to minority applicants, non-traditional applicants, and handicapped applicants.

Students who satisfactorily complete the fundamentals program are guaranteed acceptance into the center but not necessarily into the program of their choice.

Level I students have a choice of several curricular avenues. Students attend classes two periods per day for a semester for any of the courses listed in Table 1. Students attending for the entire year choose two programs from Table 1.

TABLE 1

Center of Applied Technology North

- Major Appliance
- Auto Body
- Home Improvement
- Food Service
- Greenhouse and Landscape Management
- Machine Shop
- Sheet Metal
- Drafting
- Carpentry
- Electricity
- Welding
- Masonry
- Plumbing
- Graphic Arts
- Small Engine
- * Nursing Assistant

Center of Applied Technology South

- Auto Body
- Electricity
- Air Conditioning
- Building Construction
- Welding
- Marine Repair
- Small Engine

* Nursing assistant program is only open to 11th and 12th grade students.

Those Level I students enrolling in Table 2 programs will attend classes a full year for varying lengths of time according to the special needs of the program, as shown:

TABLE 2

Center of Applied Technology North

3 Periods Per Day	2 Periods Per day
. Auto Mechanics	. Electronics
. Diesel	
. Cosmetology	
* . Licensed Practical Nursing	

*Must be a junior

Center of Applied Technology South

3 Periods Per Day	2 Periods Per day
. Auto Mechanics	. Restaurant and Hotel
. Cosmetology	. Electronics

After completion of Level I, students may either specialize in one program or continue exploring programs. Level II programs are scheduled for three periods a day for two semesters. Three credits are awarded on an annual basis. Licensed practical nursing is an exception. Licensed practical nursing students are scheduled for seven periods a day for two semesters with seven credits awarded on an annual basis.

At the end of Level II, trade and industry students may sign up for cooperative work experience. Many students are placed at work experience stations during the summer. Work experience students earn at least the minimum wage and credits toward graduation. During the twelfth grade, cooperative work experience students take at least one class at their home high school in the morning and work at the job site in the afternoon. Students who do not participate in cooperative work experience spend three periods per day for two semesters at the vocational center to extend and refine their skills.

In order to participate in the work experience program, students must have completed three semesters of study at one of the centers, be approved by the principal, obtain parental permission, and provide their own transportation to the job site.

The amount of class time required by the state for licensing prohibits most cosmetology students from participating in cooperative work experience. Occasionally, however, some cosmetology students do complete time requirements and pass the state examinations before graduation. They then become eligible for the work experience program. Practical nursing students may not take the state licensing exam until after graduation and, therefore, are not able to participate in cooperative work experience.

The table on the next page shows the county time requirements and credits granted for all trades and industry courses. All students, upon completing or leaving a

TRADE AND INDUSTRY PROGRAM
TIME REQUIREMENTS AND CREDITS GRANTED

Program	Level 1 Hours	Level 1 Credits	Level 2 Hours	Level 2 Credits	Applied Math Credits	Applied Science Credits	Level 3 Hours	Level 3 Credits	Total Hours	Total Credits
Air Conditioning	132	1	420	1	1	1	420	3	972	7
Appliance Repair	132	1	420	1	1	1	420	3	972	7
Auto Body	132	1	420	1	1	1	420	3	972	7
Auto Mechanics	420	3	420	1	1	1	420	3	1260	9
Building Construction	132	1	420	1	1	1	420	3	972	7
Boat Building and Repair	132	1	420	1	1	1	420	3	972	7
Carpentry	132	1	420	1	1	1	420	3	972	7
Cosmetology	420	3	420	1	1	1	792	4	1632	10
Diesel			420	1	1	1	420	3	840	6
Drafting	132	1	420	2	1	0	420	3	972	7
Electricity	132	1	420	1	1	1	420	3	972	7
Electronics	264	2	420	1	1	1	420	3	1104	8
Foods	132	1	420	1	1	1	420	3	972	7
Graphic Arts	132	1	420	1	1	1	420	3	972	7
Greenhouse	132	1	420	1	1	1	420	3	972	7
Home Improvement	132	1	420	1	1	1	420	3	972	7
Introduction to Health Careers	132	1							132	1
Licensed Practical Nursing (LPN)	420	3	924	5	1	1	**		1344	10
Machine Shop	132	1	420	1	1	1	420	3	972	7
Masonry	132	1	420	1	1	1	420	3	972	7
Medical Assistant	198	1.5						3*	198	4
Nursing Assistant	132	1						3*	132	4
Plumbing	132	1	420	1	1	1	420	3	972	7
Restaurant	264	2	420	1	1	1	420	3	1104	8
Robotics	264	2	420	1	1	1	420	3	1104	8
Sheet Metal	132	1	420	1	1	1	420	3	972	7
Small Engine	132	1	420	1	1	1	420	3	972	7
Welding	132	1	420	1	1	1	420	3	972	7

* Work Experience credit only

** This program has only two levels beginning at the 11th grade program, are given a competency profile which certifies the skills they acquired in their chosen field.

Facilities at the vocational centers are not used in the evenings or summer for regular high school courses; however, adult education courses are held at both centers. At the present time there is minimal adult participation.

Curriculum guides based on occupational skills and competencies have been developed for all trade and industry areas.

Trades and industry teachers for the most part are experienced trades persons and come to teaching directly from the workplace; therefore, most of them do not have education degrees or teaching certificates. An arrangement for obtaining certification has been worked out with the Maryland State Department of Education and the University of Maryland. A trades and industry candidate for a standard professional certificate is required to obtain 21 credits from the University of Maryland within two years of initial employment.

In addition to the systemwide regularly scheduled staff development days, trades and industry uses the three examination days each semester for staff development purposes. Staff development takes place in large groups on a countywide, schoolwide, or departmentwide basis; in small groups; and on an individual basis. Topics for group staff development have included writing of objectives, student motivation, lesson planning, questioning techniques, teaching directed reading lessons, shop organization, grading and bookkeeping, and the Madeline Hunter theories. A coaching model is utilized for individual staff development. Areas of need which are identified by either the teacher, the principal, or both provide the content for the staff development.

In addition to the above, all new teachers receive staff development from the coordinator of trades and industry. These hour-long sessions are held on a weekly basis for 15 to 25 weeks.

Trades and industry programs are evaluated with information gained from follow-up surveys, employment data, and craft committee reports. Program modifications and/or revisions are based on these evaluations.

RESEARCH

A review of the literature produced the following findings:

- Vocational education has something to offer all students and academic and occupational education should be complementary.
- Vocational education makes school meaningful for many students.
- Vocational programs allow the academically poor student to experience success and encourage potential dropouts to remain in school.
- Vocational education provides assistance to some students not adequately served by academic or general education.
- Rapid technological changes may make specific skills and/or jobs obsolete. Sixty million jobs will change in character in the next generation.

- Educators should place greater emphasis on general skills anticipating the many job changes in life.

- An individual's ability to adapt to job changes and transfer prior skills, knowledge, abilities, and attitudes to new applications can have a significant impact on success in a new job.

- There is a growing interest in teaching technical concepts and principles that have broad applications for a variety of jobs within occupational clusters in order to prepare students for employment in a number of different, yet related, occupations.

- Vocational education focuses primarily on the acquisition of employable skills. It also reinforces academic skills by making them relevant and applicable.

- Many students who are trained for a specific occupation receive employment in areas unrelated to that training.

- It has been shown that when subjects such as math and physical sciences are presented in traditional forms, they may have little meaning for students who need to actively apply concepts to something more relevant.

- Employers report that graduates who experience difficulty on the job usually do not lack occupational skills, but have problems with human relations and work attitudes.

- The prohibitive cost to school systems of maintaining technologically advanced industrial equipment necessitates investigating possibilities for industry to assist in occupational skill development.

- A disadvantage in making occupational training the responsibility of employers is that only in the largest firms is it economically feasible for skilled workers to spend time in the training of others.

- There is a shortage of qualified vocational education teachers.

- Vocational education students feel they receive more counseling from their vocational teachers than non-vocational education students do from their teachers.

- The large number of high school students who make unrealistic career choices accentuates the need for counselors who have had experience in other than purely academic areas.

- Employment rates for vocational graduates are higher than for comparable groups in the total labor force.

- Economically, vocational graduates are doing as well as or better than graduates of other curricula.

- In addition to the above findings gathered from national and regional research, a major study of the trade and industry program was conducted by the county school system's Department of Pupil and Program Evaluation between April and September 1980. That study produced the following findings specifically related to the Anne Arundel County public schools' trade and industry program:

- Ninety-two percent of the former trade and industry program students surveyed reported having secured employment at the time they left school or within six months thereafter. This is in sharp contrast to the high levels of unemployment among youth reported nationwide.

- County employers report a preference for job applicants whose skills have been developed through the vocational education program of the county school system.

- Although all new employees hired by county employers tend to begin their employment at the same salary, graduates of the county's vocational education programs appear to advance in their jobs at a more rapid rate.

- The majority of former students report that they are satisfied that their present job duties are related to the training they received while in school. They also indicated that all or most of the skills they need to perform in their present jobs were provided by their vocational training.

- A variety of counseling procedures was reported by former students. It suggests that student counseling for vocational education may not be systematic and comprehensive in all schools for all students.

- According to the survey, the length of trade offerings appears to be realistic. However, principals suggest examining each trade through craft committees or external consultants. The length of trade offerings should be consistent with the needs of students and the time required to teach each trade.

RECOMMENDATIONS

There are two major challenges facing the trade and industry program. The first is low enrollment at a time when there is increasing demand for its graduates. The reasons for this are many and varied ranging from lack of information to misinformation about the opportunities available to students who choose this path. The second challenge is student adaptability.

The worker of the future must be adaptable to change. Therefore, trade and industry programs must emphasize problem solving and transferable skills. Also, the programs must be adapted to the changing needs of society by phasing out non-essential programs and implementing new programs of varying lengths in an expeditious manner.

It is recommended that:

> **A DELIVERY SYSTEM BE PROVIDED FOR TRADE AND INDUSTRY PROGRAMS WHICH INCREASES COMMUNITY INVOLVEMENT, ENHANCES THE IMAGE OF TRADE AND INDUSTRY PROGRAMS, IS RESPONSIVE TO CHANGING TECHNOLOGY AND JOB MARKETS, REQUIRES INTEGRATIVE EFFORTS OF EDUCATIONAL SECTORS, AND MAXIMIZES STUDENT POTENTIAL BY DEVELOPING POSITIVE WORK HABITS AND ADAPTABLE JOB SKILLS**

In order to implement the above recommendation, it is proposed that:

- Community involvement be increased through:
  - cooperative planning with government, business, and industry to prepare for new and increasing job demands
  - business and industry sponsored presentations and workshops to provide career information for students and staff
  - utilizing demographic trends to provide appropriate vocational and avocational courses
- The image of trade and industry programs be enhanced by:
  - developing a model career education program including visitation to centers
  - providing education plus summer experiences to increase trades and industry awareness for elementary students
- The changing technology and job markets be responded to with:
  - continued efforts to integrate computer technology to trade applications and increase teacher productivity
  - upgrading facilities and replacing equipment consistent with occupational trends
  - upgrading skills that reflect changes in technology and job requirements
- Integrative efforts of educational sectors be fostered by:
  - providing counseling services at each home school to include, but not be limited to, reviewing and developing career awareness programs, promoting articulation between feeder schools and technical centers, and conducting follow up studies of program graduates
  - providing services to meet the needs of all students through a team effort among trade and industry educators, special educators, and all other educators under the auspices of the instructional department
- Student potential to develop positive work habits and adaptable job skills be maximized by:
  - encouraging and assisting career exploration at elementary and pre-high school levels utilizing a variety of role models and offering summer career exploration camps
  - promoting better utilization of technical centers to extend learning opportunities to the community
  - continuing the emphasis on developing problem solving and entrepreneurial skills for each trade

- A public relations program be developed which emphasizes community involvement and promotes a positive image of trade and industry
- Industry be involved in planning changes in programs and equipment to meet the needs of the job market
- Articulation between various sectors of the educational community be increased
- Curricula and management skills be updated to ensure that students are prepared for a changing job market

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- All students will be aware of the opportunities available to them through the trade and industry programs.
- A greater number of students will avail themselves of the trade and industry programs.
- Trade and industry programs will reflect the changing needs of the marketplace.
- There will be more cooperation between various sectors of the educational community with emphasis on meeting the needs of all students.
- Students will acquire problem solving and transferable skills.
- Students will be more adaptable in the job market.

CONSIDERATION: COOPERATIVE WORK EXPERIENCE PROGRAM

PRESENT STATUS

The six different programs available to students in the Cooperative Work Experience Program are Business Computer Programming, Cooperative Office Education, Diversified Occupations, Health Occupations Programs, Marketing Education, and Trade and Industry. A brief description of each of these follows.

Business Computer Programming (BCP)
Cooperative Office Education (COE)

Business Computer Programming (BCP) and Cooperative Office Education (COE) are offered as business education work experience programs. BCP provides actual job experience in a computer-related position, while COE provides job experience in an office. Three credits respectively are awarded for these two semester courses. Both of these work experience programs, available only for seniors, have prerequisites in related business courses. Each requires concurrent enrollment in the respective courses in Business Computer Programming II or Cooperative Office Education which are held each morning at the students' home high schools.

Diversified Occupations (DO)

The Diversified Occupations Program (DO) is the only cooperative work experience program in which specific job skills are acquired solely through on-the-job training rather than through class work. Students are required to take a one-semester course (DO I) in the 11th grade, for which they earn one-half credit. DO I emphasizes career exploration and job-seeking skills. In grade 12, the DO II concurrent class concentrates on job problems, human relations, communications, financial management and consumer responsibility. DO II students earn one-half credit for related classes and one and a half credits for work experience each semester. Those students enrolled in the work experience portion of DO II take courses at the high school in the morning and, for the remainder of the day, work in businesses as scheduled by their employer.

Health Occupation Programs (HOP)

The Health Occupations Program (HOP), an exploratory program of health careers, is designed for 11th grade students. Three hours of daily instruction are given at one of the area hospitals. Transportation is furnished by the school system. Twelve weeks of the first semester are devoted to classroom instruction; the remaining six weeks are spent exploring various health-care components. During the second semester students choose an area of interest in which they will spend four days per week gaining hands-on experience, with the fifth day devoted to classroom instruction.

All HOP I students receive a certification card and pin upon the successful completion of the American Red Cross Home Nursing Aides examination in addition to a Geriatric Nursing Certificate for the successful completion of the HOP I program. Three credits are awarded for this two-semester course.

HOP II students (12th graders) attend their home schools in the morning and work in a health-related activity with an employer. The students are visited at their work sites on a regular basis by their HOP coordinator and meet one hour each month with the teacher coordinator to discuss their progress. Three credits are awarded for this two-semester course.

Marketing Education (ME)

Marketing Education is a program which prepares students for careers in the field of marketing and distribution. It encompasses businesses and occupations involved in the flow of goods and services from the producer to the consumer. Students gain an understanding of basic economic concepts and learn to perform marketing functions and tasks utilized in a variety of businesses. This program begins in the 11th grade with a two-semester, one-credit course which concentrates on basic job skills, economics, and marketing concepts necessary for entry-level employment. In grade 12, ME II students extend their knowledge about management and entrepreneurship. ME II is a two-semester, one-credit course which can be taken in conjunction with ME Work Experience. In ME Work Experience, 12th graders can earn up to three credits for working at a marketing-oriented job site as scheduled by their cooperating employers.

Trade and Industry (T & I)

The Trade and Industry Cooperative Work Experience Program is designed for 12th graders who have completed at least three semesters of a given trade at one of the two vocational-technical centers or at Southern Senior High School. Students who have met the course criteria and have their own transportation are eligible to participate. Students take required courses at their home high school and work at the job site as scheduled by the work-coordinator and employer.

Student Participation

Approximately 95% of all students who are making satisfactory progress in the vocational program participate in cooperative work experience, with the exception of cosmetology and practical nursing students who do not participate because of licensing requirements by the state of Maryland. A total of 1,192 students participated in cooperative work experience between June 1985 and June 1986, the majority of whom were placed prior to the opening of school in September. During that school year over 600 employers hired students in occupations ranging from fast food service to electronics, paying them at least the minimum hourly wage. The charts on the next page summarize the extent of and participation in the work experience programs.

Guidelines

The following guidelines have been established for participation in work experience programs:

- A student must have successfully completed a minimum of one year of a sequentially-planned vocational program except for the diversified occupations program. Students must be recommended by the principal, counselor, and teacher-coordinator of the work experience program.

- A student must be placed in a work site approved by the teacher-coordinator and the job must relate to the program the student is taking.

- Students are responsible for their own transportation to and from their place of employment.

- Students are paid according to the Maryland State Labor Law. However, most of the occupations in which the students are engaged pay above minimum wage.

- Individual student training plans are developed by teacher-coordinators in cooperation with the employers.

- All programs award a maximum of three credits per year upon successful completion of the work experience program.

- An average of fifteen (15) hours per week must be worked by the students during the school year to earn 3 credits. They may not work on any day they are absent from school.

- Job availability requires that some students work evenings, weekends, and holidays.

WORK EXPERIENCE PROGRAMS BY SCHOOL
1985 - 1986

SCHOOL	BCP	COE	DO	ME	HOP	T&I
ANDOVER HIGH SCHOOL	X	X	X	X	X	
ANNAPOLIS HIGH SCHOOL	X	X	X	X	X	
ARUNDEL HIGH SCHOOL	X	X	X	X	X	
BROADNECK HIGH SCHOOL	X			X	X	
BROOKLYN PARK HIGH SCHOOL	X	X	X	X	X	
CHESAPEAKE HIGH SCHOOL	X	X	X	X	X	
GLEN BURNIE HIGH SCHOOL	X	X		X	X	
MEADE HIGH SCHOOL	X	X	X	X	X	
NORTHEAST HIGH SCHOOL	X	X	X	X	X	
OLD MILL HIGH SCHOOL	X	X	X	X	X	
SEVERNA PARK HIGH SCHOOL	X	X			X	
SOUTH RIVER HIGH SCHOOL	X	X	X	X	X	
SOUTHERN HIGH SCHOOL	X	X			X	X
SOUTH RIVER VO-TECH CENTER		X				X
NORTH ARUNDEL VO-TECH CENTER		X				X
TOTALS	13	12	9	11	13	3

ANNE ARUNDEL COUNTY PUBLIC SCHOOLS
COOPERATIVE EDUCATION PROGRAMS
EARNINGS REPORT
June 1985 - June 1986

Program	No. of Students	No. of Teacher Coordinators	Hours	Avg. Hrly. Wage	Gross Salary	Taxes
Business Computer Programming	179	13	183,834	$4.18	$ 769,065.26	$131,005.42
Cooperative Business Education	253	12	239,481	$4.28	1,025,195.60	157,641.79
Diversified Occupations	272	11	310,436	$3.35	1,039,960.40	204,520.99
Health Occupations Program	47	2	50,070	$3.66	183,162.27	34,057.65
Marketing Education	215	10	208,984	$3.98	830,939.36	137,238.44
Trade and Industry	226	4	254,736	$4.01	1,022,638.70	193,638.09
TOTALS	1192	52	1,247,541	$3.91	$4,870,961.40	$858,102.38

- Students are responsible for notifying the teacher-coordinator and the employer when they are going to be absent.

Teacher Coordinators

A total of 51 teacher-coordinators are responsible for the work experience programs at the 13 high schools and the two centers of applied technology. Teacher-coordinators teach three periods daily and spend the other two periods placing students and coordinating training activities with the students' employers. Teacher-coordinators are expected to visit job sites approximately every two weeks to develop training plans and to evaluate the students' success on the job. Work experience teacher-coordinators also work during the summer, placing students and coordinating their experiences prior to the school year. Three of the full time work experience coordinators work exclusively in the area of trade and industry and one in health occupations. The others work in the other program areas.

Once during each marking period, a meeting is held with the teacher-coordinators representing each of the six disciplines. These meetings afford the opportunity to evaluate current programs, as well as plan for future inservice activities. Updated information concerning such items as current laws and board policies is also presented at these regularly-scheduled meetings.

Each teacher-coordinator is given a handbook which contains necessary forms and guidelines needed to implement the work experience programs.

The duties and responsibilities of a teacher-coordinator are as follows:

- Serve as teacher in the assigned content area by performing those duties and responsibilities common to all high school teachers

- Counsel vocational education students regarding job information, job problems, future job potential, and job skills

- Place students in related training jobs and provide for regular observations and conferences concerning students' performance

- Introduce the program to employers and explain the responsibilities of each party - student, parent, teacher, and employer

- Collect and record all information necessary for the performance of the teacher-coordinator position

- Complete all reports and training plans necessary for the instruction and evaluation of student performance

- Complete all forms as required by local and state regulations concerning cooperative work experience programs

- Assist work experience program coordinators in various activities connected with the program (e.g., appreciation banquets, workshops, teacher-coordinator meetings, and curriculum committees)

- Articulate the work experience program with the total program in the school and work cooperatively with the administration in the offering of a quality program

Credit and Grading

A grade of S for satisfactory or U for unsatisfactory is determined by the employer's evaluation of the student's job performance. At least one written evaluation per student during each marking period must be submitted to the teacher-coordinator.

To receive credit for work experience, all students must earn an S for the semester and, with the exception of those students enrolled in trade and industry and health occupations, must pass a related course taught concurrently by the teacher-coordinator at the home high school.

RESEARCH

A review of the literature produced the following findings:

- Cooperative education is one of the oldest forms of a partnership involving high schools and businesses. On the national scale, there are currently a half-million high school students participating in some kind of cooperative education program where the employers provide paid work experience on job sites during the school year.
- Although work experience programs do not eradicate dropping out of school and chronic truancy, they do increase the holding power of the school for many students.
- An additional value of work experience is the possibility that students whose work has been satisfactory will be hired full time by the employers for whom they have been working.
- Many high school graduates are virtually unemployable, even at today's minimum wage, and cannot meet entry-level job requirements.
- The business community has much to offer. It has critical information about what is required for successful employment and work sites for training, internships, and career development.
- Cooperative work experience prepares young people to cope with new approaches, techniques, equipment, and technologies introduced in the workplace.
- Most estimates are that employment opportunities in high growth occupations will require minimal training beyond high school for entry level, but may necessitate continuing education.
- Students learn to reason more effectively when they are placed in a hands-on job.
- Career-based work experience programs appear to improve a student's future labor market success and earning power.
- Cooperative education results in better performance by some students (i.e., increased school attendance, decreased retention rates, and a more positive attitude toward school and work).

- Work experience programs have been shown to have a positive influence on local communities through economic enhancement.

RECOMMENDATION

It is essential that the Cooperative Work Experience Program continue the joint partnership between the business community and the school system. Such a partnership fosters a smooth transition from school to work; helps to meet the employment needs of the community; and is a direct benefit to the student, the school, and the community.

It is recommended that:

> **WORK EXPERIENCE PROGRAMS BE CONTINUOUSLY EVALUATED AND MODIFIED TO REFLECT EMPLOYMENT NEEDS**

In order to implement the above recommendation, it is proposed that:

- The employment needs of businesses be assessed on an ongoing basis
- The number of businesses involved in the work experience programs be increased so that all interested students have an opportunity to have on-the-job training in their area of interest
- All students majoring in vocational education be expected to complete a core academic curriculum in addition to their occupational training
- Teacher coordinators be employed in the summer to ensure that all students have proper placement and supervision in the summer during the crucial initial phase of the work experience, as well as during the school year
- Training plans be developed for all students in line with the students' competency profiles and that all students be employed in jobs related to their vocational programs
- Vocational education programs be designed to impart to students a basic set of academic skills, behavorial patterns, and attitudes toward work that will ensure the students' success in the world of work
- A follow-up survey of graduates be developed and implemented

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- Students will acquire pre-employment skills.
- Students will possess entry level employment skills.
- Students will apply academic skills/knowledge to an employment setting.
- Teachers will receive feedback from employers about student performance.
- The program will reflect the needs of the business community.

- There will be an increase in the employment rate and in the job options available to students.

- The economy of the community will be enhanced.

PROGRAM AREA: VOLUNTEERS

PRESENT STATUS

During the 1985-86 school year, over 5,000 volunteers provided services in the instructional programs of the Anne Arundel County Public Schools and over 4,300 provided services in the non-instructional programs. The non-instructional programs only include volunteers for media services, health rooms, and clerical services. There were over 3,000 volunteers who participated in other non-instructional volunteer activities such as athletic and band boosters, Parent Teachers Associations, Citizens Advisory Committees, field trips and chaperoning. Over 46,000 students were served by the volunteers and 227,539 recorded hours of service were provided to students during the school year. If these volunteers had been paid $5.00 per hour the school system would have incurred a cost of $1,137,695.

All schools are encouraged to have a school professional volunteer coordinator and a lay coordinator to help ensure a successful volunteer program in the schools. There were volunteer lay coordinators in 69 elementary schools and 20 secondary schools.

Training programs were planned and conducted in the areas of kindergarten, reading, math, computer, foreign language, drug education, and gifted and talented for the county volunteers. Additionally, individual schools provided orientation sessions for their volunteers.

Some overall accomplishments of the county volunteer program included:

- Orienting lay coordinators to their duties and informing them of various programs in the school system

- Developing a Volunteer Advisory Board to help plan activities of the County Volunteer Program

- Conducting a countywide volunteer fair

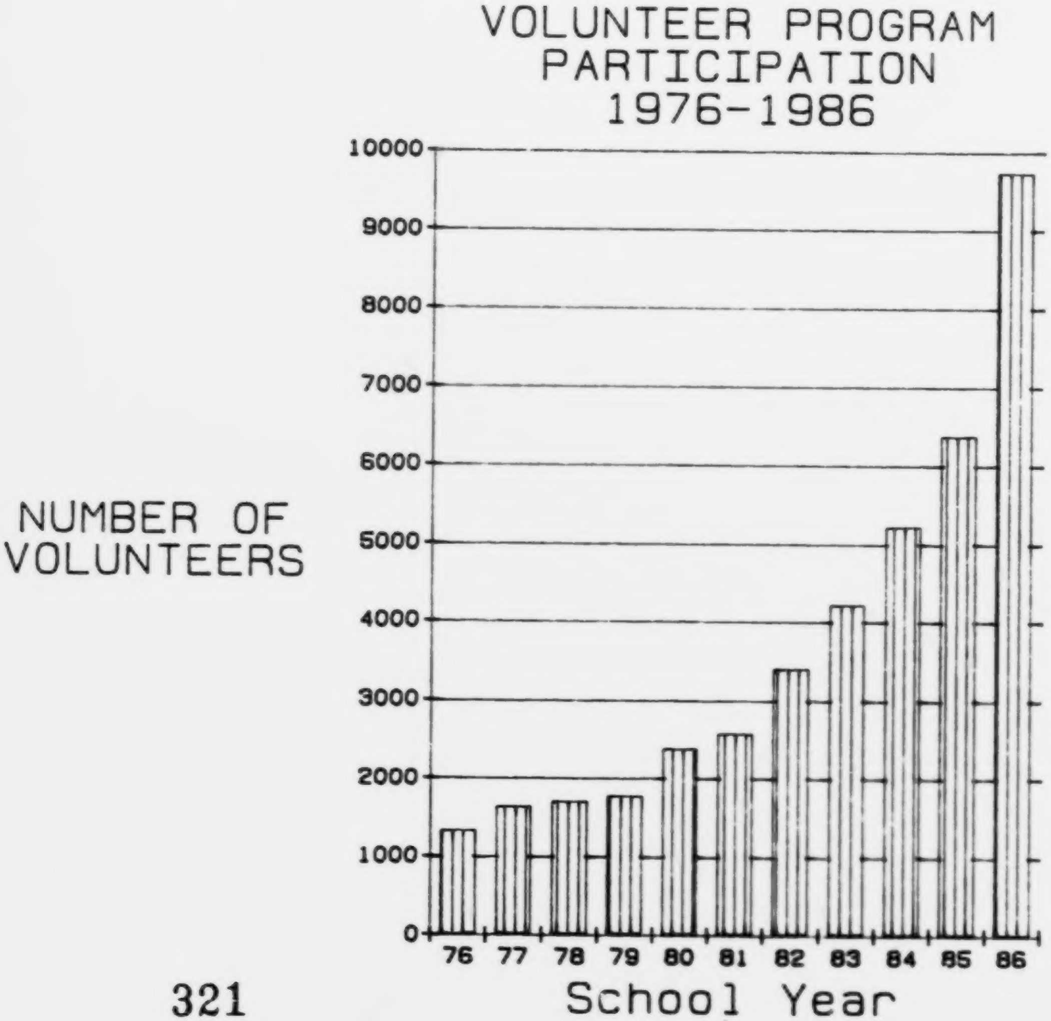
- Holding a volunteer tea

- Compiling, writing, and disseminating four countywide volunteer newsletters

- Participating in the State Volunteer Conference

- Increasing emphasis on business and school partnerships

- Expanding the volunteer program in the secondary schools



Notes:

1. Data come from Anne Arundel County Volunteer Program obtained from Maryland State Department of Education Survey.
2. Figures include instructional, as well as non-instructional media, health room, and clerical volunteers.
3. Figures DO NOT include Anne Arundel Community College, student volunteers, P.T.A., C.A.C., band and athletic boosters, field trip volunteers, room parents, and chaperones.
4. Figures from 1982-83 and 1983-84 were estimated from mean yearly increase.

The graph on the following page shows the growth of the volunteer program over the past eleven years.

RESEARCH

A review of the literature produced the following findings:

- Organized school volunteer programs headed by program coordinators are fairly new.

- The Twelfth Annual Survey of Education for the Kettering Foundation, conducted by the Gallup Poll in 1980, included questions on citizens as volunteers in public schools. This was the last time such questions were included in the poll. It was reported that 39% of the respondents were presently involved in some capacity and 61% had never been asked to volunteer in a school.

- Volunteers are found in 79% of the public school districts in the United States.

- Volunteers in the 30- to 49-year age range have participated most often as volunteers in schools. This is probably because they have school age children.

- Time management techniques and volunteer training are essential for successful utilization of volunteers.

- When volunteers are utilized within the structure of an organized school volunteer program, teacher attitude is positive and volunteer retention is high.

- The kinds of people who volunteered in schools were:

Parents	33%
Older citizens	24%
Students	21%
Business employees	18%
Other	4%

RECOMMENDATION

Volunteers have supported the school system in instructional and non-instructional areas in increasing numbers. The benefits, both direct and indirect, enhance the effectiveness of the school system in delivering quality programs.

It is recommended that:

THE SCHOOL VOLUNTEER PROGRAM BE EXPANDED AND ENHANCED

In order to implement the above recommendation, it is proposed that:

- The resources of the community such as employers; senior citizens; college students; military, government and business leaders; and public school students be utilized to increase volunteers in the schools

- A public relations program to inform the community through the various media be developed more fully
- Staff development on the use of volunteers at all levels of the school system be provided
- Volunteer training programs which address both elementary and secondary school concerns be provided
- Specific emphasis be given to recruiting volunteers for schools that historically have difficulty securing volunteers, especially for those schools serving disadvantaged students

OUTCOMES

With adoption of this recommendation, the following outcomes are projected:

- The instructional program of the students will be enriched.
- Communication will be enhanced between the school and the community.
- Public support for schools will increase.
- Citizens will have a better understanding of what schools do and schools will appreciate more fully the problems faced by parents.

CHAPTER IV
FUNDAMENTAL ISSUES

It must be remembered at all times that the reason for the existence of the institution called a public school is to provide instruction for all students and that public elementary and secondary education is a public good. This is the perspective from which the remarks on the following fundamental questions have been made.

What are the basic purposes of the public school system?

What should be taught and why should it be taught?

When should it be taught?

How should it be taught?

Where will it be taught?

Who should be taught?

How will student success be determined?

Who will teach?

What internal support is needed to improve teaching?

What external support is needed for educational excellence?

How will educational excellence be achieved?

These questions are basic but complex. There are no simple answers to them. Although responses have been given to each question individually, the responses are not mutually exclusive. Hence, they should be examined and discussed in their totality. The questions should remain in the forefront of all educational discussions. The answers to them will continue to evolve through the pursuit of educational excellence.

WHAT ARE THE BASIC PURPOSES OF THE PUBLIC SCHOOL SYSTEM?

Democracy depends upon the active participation of competent citizens - citizens who recognize the need to participate and who are capable of making independent, informed decisions. Therefore, the survival and improvement of democracy depends on thorough and efficient organized public education systems to develop such citizens. The experiences provided by the public school system should be maximally educative in preparing all students to live in an international society in the 21st century. The basic purposes for the existence of public schools as stated in the philosophy of the Board of Education are for each student:

- To develop a strong sense of self-respect and a commitment to respect the rights of others
- To master the intellectual skills of reading, writing, computation, speaking and listening

- To acquire the knowledge and habits of thought necessary to understand both cultural and scientific heritage and the contemporary world

- To develop skills and attitudes that will promote success in post-secondary education and in the world of work

- To develop creative abilities and cultural interests

- To develop wise and productive use of leisure time

- To develop those habits of good health and physical activity that are conducive to a productive life

In providing experiences to achieve these fundamental purposes, it is important to keep in mind that education is the process of an individual becoming. The aim of education is to have this process flourish at its maximum level. The richer the meaning of the experiences, the greater the desire of the individual to continue to grow. This then leads to attitudes and behaviors necessary for lifelong learning.

Not all students aspire nor have the ability to become the same and the schools should not strive for such conformity. There is strength in diversity, especially in a pluralistic democratic society. On the other hand, there must be common bonds to hold a pluralistic society together. Therefore, it is imperative that the schools be sensitive to and vigilant in maintaining a balance between individual and societal needs. Such a tenuous balance will provide the diversity of talent with common purposes needed for a democracy to grow and prosper. This, in turn, will enhance the quality of life which is directly related to the level of educational attainment of the citizens.

WHAT SHOULD BE TAUGHT AND WHY SHOULD IT BE TAUGHT?

To accomplish the basic purposes of the public school system in a time when knowledge is proliferating at an increasing pace and when it is possible to transmit only a small portion of that knowledge during the formal elementary and secondary educational experiences, it is critical for the public schools to be highly selective in which experiences are provided. While the level of literacy has increased steadily, the demands of an information society for an even higher level of literacy has increased more dramatically. The issue becomes what experiences should be provided to educate students so they can reach their potential and become contributing members of society and lifelong learners in a world that will continue to change rapidly.

The fragmentation of curriculum into manageable and somewhat arbitrary content areas will continue to be the predominate structure of the programs in schools for the remainder of this century. The traditional areas of English/language arts, mathematics, science, social studies, art, music, physical education, foreign languages, vocational and special education, and media will continue to be identifiable as integral components of the school program. There will be increased emphasis on early childhood programs, world citizenship and international studies, health, foreign languages and foreign cultures, and computers and their evolving technologies. Also, those programs that prepare students for job-entry skills immediately upon graduation will be under continuous scrutiny to ensure students are not being prepared for obsolete, dead-end jobs which will afford them little opportunity to live rich fulfilling lives.

Within this framework, the basic skills of gaining, applying, and transmitting information will remain the focus of the educational experience. The rapid expansion of available information and of the means to communicate that information requires that the communication skills of reading, writing, speaking, and listening be taught through various media and in appropriate context. However, survival in such a complex society demands more than just access to information. The ability to analyze and make critical judgments is essential if wise decisions based on strong democratic values are to be made. It is imperative that the skills, attitudes and behaviors be taught that will provide a value structure to enhance the quality of life for future generations in an international society.

In preparing students for adulthood; however, it is equally critical to remember the role that the arts - visual and performing - play in enhancing the quality of life. The arts provide a means by which all people can enrich their lives by self-expression and by responses to the expressions of others. The arts must be considered basic and included in the educational experiences for all students.

Although it is projected that the organization of curriculum will reflect the models of today, there will be adjustments and refinements both within and between the various curricular areas to reflect student and societal needs. As the boundaries of the curricular areas shift, decisions as to what educational experiences to provide must be made on the basis of projected personal and societal needs rather than on tradition. In all areas, it will be important that higher order thinking skills and affective education be stressed commensurate with the ability of the students.

WHEN SHOULD IT BE TAUGHT?

Learning does not start and stop at set times. It is a continuous process. Provision must be made throughout the schooling experience to accommodate the differences in rates of learning of students if all students are to be able to maximize their potential.

A major comprehensive study of the elementary school program should be undertaken that examines the changing societal conditions, the research on child development and learning, and the concomitant implications for delivering educational experiences for students at this level. This, in turn, will have implications for delivering educational experiences at the secondary level. In examining when something should be taught, it may also be determined that it is no longer appropriate for the school system to offer some programs and that it would be appropriate to start other programs.

Moreover, at least for some students, especially at the secondary level, the possibility of providing a more flexible school day and/or flexible school year should be explored. The flexibility may result in more evening and summer programs for students who do not fit the traditional mold. It may also result in extended day programs for other students wishing to supplement their basic programs. Before and after school educational day care programs should be established in the schools for elementary students. In schools where space exists full-day programs should be considered to care for children who have not yet entered school or who attend school for only a half-day. To meet the needs of all students, it must be recognized that some of the conventionality of the school system must be modified. The decision as to when something should be taught must be predicated on society as it exists and is projected to look in the future integrated with the research on child and adolescent development and learning rather than on the convenience of the system.

Extracurricular activities are another kind of extended day program. To assist in the transition to adulthood, schools should not only provide a variety of opportunities for students to participate in extracurricular activities, but should encourage them to participate in such activities commensurate with their age, interest, and ability. These programs often provide the motivation for the development of both vocational and avocational interests, especially at the secondary level. At the elementary level they provide learning and enriched socialization experiences which frequently are not available in the home.

HOW SHOULD IT BE TAUGHT?

Students learn from many different sources and through a variety of modalities. The optimum learning situation is to match the learning styles of the students with the mode through which they learn best. To structure such learning situations requires the teachers to recognize their own styles as well as those of their students and to use a variety of materials and techniques for delivering instruction. The adoption of this position also requires a high degree of individualization. However, individualization should not be interpreted as students working alone. Although this might be appropriate in some situations, individualization can be accomplished through grouping strategies and/or the use of teaching technologies. Regardless of the strategy used, opportunities for socialization to occur in the learning process must be provided.

The challenge is to use technology to do those things that it can do better than the teachers and for the teachers to do those things that they can do better than technology. For example, technology may be used to provide drill and practice, accommodate variety in learning rates, project simulations that are difficult to produce in other ways, provide instruction to and from remote sites, complete complex computation, and access and analyze information from a variety of sources. On the other hand, even with the advent of artificial intelligence, there will still be the need for teachers to provide interaction with individuals and within and between groups.

As technology and its use for instructional purposes evolve, it will become more accessible. For example, it is projected that solar and battery powered computers will be as available as similarly driven calculators are today. Hence, they should be viewed in the same context as a basic instructional material such as the textbook is seen today. Of course, this will require a restructuring of thinking about modes of instructional delivery and a system to support these changes.

In the final analysis, there has never been, is not now, nor is there projected to be in the future a single best method of teaching appropriate for all students. The school system would be remiss if it did not continually pursue more effective and efficient methods of teaching and provide students with experiences using the latest materials and equipment so that they can transfer their learnings to societal experiences and become lifelong learners.

WHERE WILL IT BE TAUGHT?

Schools usually conjure the thought of a building where teaching and learning take place. There will continue to be buildings designated for such activities. It is important for these buildings to be pleasant, well-appointed, and supplied with appropriate modern equipment and materials that will support the teacher in maximizing student potential. It is desirable for the schools to accommodate student populations that are representative of the broad community which the school system serves. Also, it is desirable for the schools to be as comprehensive as is feasible. On the other hand, it must be recognized that it is not feasible to offer all programs at all schools. In such cases students should not be penalized because of where their parents reside. Furthermore, specialized instruction in areas such as vocational education, special education and the arts may be more appropriately provided in centers.

While most formal elementary and secondary educational experiences have historically occurred in facilities called schools, it must be recognized that rich opportunities for learning can occur in other places under the auspices of the public school system in cooperation with other educational institutions, businesses, and governmental institutions at the federal, state and local levels. In addition, technology provides the opportunity for the concept of the school to extend beyond the facility. For example, it is possible for students to receive home instruction, to communicate with foreign countries via satellite, to teleconference with other students on matters of mutual interest, and to access information from sources around the world. Student exchange programs within the United States as well as with other countries should be encouraged. They provide additional opportunities for rich learning experiences to occur.

Finally, much learning can occur through the performance of volunteer and other types of service in the community. The school system should encourage such participation. At the same time it is important for the school facilities to be available for use by community groups as long as the basic mission of the school is not hindered.

In summary, formal and informal education may take place in a variety of settings. It is the responsibility of the school system to capitalize upon the many rich opportunities that exist and which may be used to assist in providing educational experiences that can enable the students to reach their potential as future citizens.

WHO SHOULD BE TAUGHT?

The laws of Maryland stipulate the ages during which students must be in attendance at school. However, having met the legal attendance requirement is not synonymous with having met the educational needs of the student. The challenge is to maximize human potential. This requires a vigilant pursuit of excellence and equity for each student. Although standards and expectations must be high, at the same time flexibility must be retained to meet the needs of diverse student populations. In other words, the program must be adjusted for the student rather than the student being made to fit the program. It is unconscionable to let students just put in time until they reach the age when they can drop out of school or be pushed out of school. At the earliest possible age students who are in danger of being unsuccessful in school should be identified and their programs be modified to ensure success and completion of at least a high school program.

In addition to teaching students enrolled in grades K-12, preschool programs should be provided for all students. Moreover, although adult education is not the primary responsibility of the public school system, the system should accept responsibility for providing programs for all adults who have not completed high school graduation requirements. The evening high school, G.E.D., adult basic and External High School Diploma programs should be continued. Additionally, under certain conditions, adults should be allowed to take courses in the regular high schools as well as at the centers of applied technology. The public school system must accept the challenge to see that each resident within its geographical boundary receives at least a legitimate high school diploma.

How will student success be determined?

To determine the success of the school system in delivering instructional services to the students requires an examination of a broad variety of both qualitative and quantitative measures on many indicators. Among the indicators that should be used are results from standardized tests not only in language arts and mathematics, but also in other content areas; results from teacher-made assessment measures; and cumulative data on attendance and promotions, withdrawal from school, disciplinary referrals and concomitant actions, participation in various courses, participation in various programs (e.g., vocational education, special education, gifted/talented and extracurricular activities), and community and parent involvement. Standardized and minimal competency tests currently being used measure only small segments of education and, hence, should not be used in isolation as major indicators of educational excellence.

Technology must be used to provide timely and accurate data in formats that will provide the basis for making qualitative decisions. Also, technology should be used for process testing, tailored response testing, power testing, objective testing, and free response testing through computer adapted testing programs locally and from remote locations. These techniques will allow flexible test administration, will provide more individualized data about the students, will provide immediate results, and may require less time for administering.

Most of the indicators and techniques discussed thus far focus on the collection and analysis of data about students' progress while they are enrolled in the school system. However, it is just as important to have valid follow-up studies done on a systematic basis for the students graduating and withdrawing from school. The information gained from such follow-up studies should be fed back into the school system and programs modified as appropriate to meet the ever-changing needs of society and to prepare the students for success in adulthood. Without such information it is difficult to determine the success of the school system. A strong system of evaluation will provide the basis for program improvement.

Who will teach?

For the school system to be excellent, it must have outstanding teachers working with all students at all levels of instruction. The quality of the teaching staff directly affects the quality of education received by the students. By increasing the quality of the teaching staff, a greater increase will be realized in the quality of education of the students than by altering any other single factor under the control of the school system. Therefore, it is imperative that the school system pursue a path that will lead to attracting and retaining the best and the brightest people as teachers. Certainly, these people must enjoy working with students. However, they must also know and be able to teach the subject which they are charged to teach to the students, and they must represent outstanding role models for the students. Furthermore, they should reflect the ethnic and racial composition of the community and of the student body, and be proportionately represented by both sexes at all levels of schooling.

To attract and retain this kind of teaching staff on a consistent basis will require some fundamental changes with a sustained effort over a number of years. These changes will increase the prestige of the teaching profession and will encourage more people to aspire to teach in the public schools of this county by increasing both their extrinsic rewards and intrinsic satisfactions. Those basic changes must include:

- Increasing the salaries and fringe benefits to a level that is at least comparable to other professions which require comparable preparation

- Implementing high standards and expectations, rewarding outstanding performance, and eliminating inefficiencies and ineptness in the most humane way possible through a strong system of evaluation

- Providing and supporting opportunities for professional growth and involvement in activities beyond the immediate classroom setting

- Providing more opportunities for collegial involvement and decision-making in determining the school systems' and the teachers' own destinies

- Eliminating, or at least significantly decreasing, non-professional duties

- Providing a career structure that will encourage the best and brightest to continue teaching

- Giving teachers the freedom to teach within broad but clearly defined limits

Bright well-educated people, as opposed to trained people, can and should be making decisions about their profession. Such a teaching staff given the freedom and conditions described above would result in less bureaucracy and provide an environment that attracts and retains an exceptional teaching staff that will provide the highest quality of education for public school students. Who will teach the students in this county will largely be determined by the response to these basic recommended changes as the competition increases to hire the best teachers for the growing number of available positions projected over the next few years.

WHAT INTERNAL SUPPORT IS NEEDED TO IMPROVE TEACHING?

Once outstanding people are attracted to the system, much can be done to support and improve the quality of teaching. Opportunities for teachers to grow professionally and personally should be available on a continuous basis. Teachers should be encouraged and supported to attend and participate in conferences and meetings, to travel, to continue formal study, to conduct research, to participate in exchange programs, to gain experience in other settings, to participate in decision-making at their work sites, and to assume leadership responsibilities. The recognition and rewards gained from such experiences will enhance their effectiveness in working with students.

Model demonstration schools should be established. These schools would serve several functions. They would be centers for research and demonstration teaching as well as catalysts for the dissemination of successful ideas to other schools. Also, they could serve as centers where instructional leaders could be developed for placement in other settings.

In addition to providing effective staff development activities for teachers, it is very important to offer effective staff development programs for all the other employees of the school system, each of whom provides support for the improvement of instruction either in direct or indirect ways. The services they perform can make the teachers' job more effective. For example, providing well-maintained facilities and grounds, nutritious and appetizing food, good transportation environments, quality supplies and equipment in a timely manner, and effective instructional leadership and administrative support services from both the local school level and central office level facilitates the delivery of instruction. Employee assistance programs that promote strong mental and physical health and enhance the dignity and self-respect of all employees will also directly affect the quality of instruction. All employees should be viewed as important members of a team whose ultimate goal is to provide the highest quality of service possible for all of the students of the system.

The school system should be organized to minimize the duplication of effort and overlapping of functions between and within departments. Technology should be supporting teaching and staff rather than staff working to support technology. Services which support teaching should be as close to the place where the educational experiences are being delivered as possible. Although some bureaucracy is needed to provide stability, every attempt should be made to minimize and flatten out the bureaucracy throughout the school system. Staff should be organized to enhance rather than frustrate the decision-making process in attaining the basic purposes of the system.

WHAT EXTERNAL SUPPORT IS NEEDED FOR EDUCATIONAL EXCELLENCE?

A high level of financial support is a necessary, but not sufficient, condition for educational excellence. It should be remembered that a high level of support is needed on a continuous basis if excellence is to be attained and retained. Schools are established to produce a public good - human capital. The cost-benefit and cost-effectiveness analyses used for physical capital can not be easily applied to human capital. However, if the quality of human capital as measured by level of educational attainment is compared to the quality of life in a society, a direct relationship will usually be found. Over an extended period of time, investment in education to develop human capital will prove to be a sound investment for the improvement of society. Therefore, all funds received must be spent in the most effective way to maximize the services provided for students.

In addition to those responsible for allocating funds to support the public school system, other external support systems can greatly assist in improving educational services. Parents and guardians of the students constitute another major support system. When parents and guardians are directly involved in and understand and agree with the goals of the school system throughout the educational experiences of their children, the chances of success by their children will be greatly enhanced both in school and in society in general.

External support from the business sector can also provide tremendous assistance in improving the quality of educational services. This support may come in the form of services, funds or goods. When it is recognized that the students of today will be their employees and consumers of their goods and services in the future, business leaders see the importance that their involvement in assisting with improving the quality of educational services will have on the economics of the future.

In summary then, public school personnel must work to garner support for educational excellence on three primary fronts. High level of support must be received from the governmental fiscal authorities, parental support must be provided from the home, and direct as well as indirect support must come from the business community. If all of these parties can establish and act upon mutually agreeable goals with the school system, the end result will be educational excellence for all students.

HOW WILL EDUCATIONAL EXCELLENCE BE ACHIEVED?

Leadership is the pivotal force behind any successful organization. The primary element of leadership is vision. There must be a vision of what should be and can be. That vision must be communicated to people and the people must be energized to respond so that the visionary ideas will be acted upon, transformed into reality, and sustained through the wise use of power. This requires an open system. Direction rather than control must be the primary focus of leadership.

It must be kept in mind at all times that the reason for the existence of the public school system is to educate students so they can reach their maximum potential. Therefore, all decisions should be based on the needs of students as projected for their lives in the 21st century, not on administrative expediency or the accommodation of the bureaucracy. In a complex and kaleidoscopic environment, it takes strong leadership throughout the school system to develop and sustain the kind of culture that consistently keeps first and foremost in mind that the basic purpose is to support high levels of motivation and learning for all students.

The focus must be on doing things better rather than drifting along, on doing the right thing rather than doing things right, on imagination and creativity rather than on the status quo, on working smart rather than just hard, on quality rather than just quantity, on substance rather than just style, on the whats and whys rather than just the hows, on what is right rather than who is right, and on asking the most penetrating questions rather than the superficial questions.

The school system must be positioned to meet the demands of the 21st century which will be far different from those of the 20th century. The changes that are occurring and will be occurring at a rate faster than at any other time in recorded history must be viewed as opportunities not as obstacles. The problems must be recognized and accepted as challenges to improve the quality of education. Challenges encourage growth. It must be remembered that the institutions and services which exist today do so because someone dared to challenge those of the past. Leaders do not follow existing paths, they blaze the trail. Although change can be painful, it can also be exhilarating if the focus is on improving the quality of life for society. The attitude must be that the best is yet to happen.

The psychological frame of reference described in this section must permeate the school system and serve as a foundation for action in the quest for educational excellence. This will require educational leadership rather than bureaucratic management.

CHAPTER V
CONCLUDING REMARKS

The preparation of this document has been a major project that has extended for more than a year and has involved many people. It was the intent to address those issues that would be most critical in pursuing educational excellence. As in any good study process, the pursuit of the answer to one question raises additional questions. This becomes a never-ending learning process. As one's vision broadens and becomes more clear, there is always the need for continuing revisions. The road to success is always under construction. However, there comes a time when closure must be brought to a project such as this.

It is hoped that there will be a broad and intense readership of this publication by both the employees of the school system and the public in general. Also, it is hoped that the readers will use the companion audiovisual presentation to put the issues in perspective.

After reasonable debate, with the opportunity for all interested parties to participate in the discussions, it is imperative that the school system establish priorities and develop an action plan to achieve its goals and objectives. By moving swiftly and deliberately in its pursuit of educational excellence and equity for all students, the school system will strive to be the best it can be and will serve as a model of excellence for all comparable school systems. A Plan for Educational Excellence for the 21st Century can serve as the vehicle to accomplish that goal.

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July 1987